MC0156

Health Building Note 47

Health records department

NHS Estates
An Executive Agency of the Department of Health

Health Building Note 47

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An Executive Agency of the Department of Health

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About this publication

The Health Building Note series is intended to give advice on the briefing and design implications of Departmental policy.

These Notes are prepared in consultation with representatives of the National Health Service and appropriate professional bodies.

Health Building Notes are aimed at multi-disciplinary teams engaged in:

- Designing new buildings
- Adapting or extending existing buildings

Throughout the series, particular attention is paid to the relationship between the design of a given department and its subsequent management. Since this equation will have important implications for capital and running costs, alternative solutions are sometimes proposed. The intention is to give the reader informed guidance on which to base design decisions.

Health Building Note 47

HBN47 focuses on District General Hospital accommodation for the Health Records:

- Office
- Library
- Admissions office
- Microfilm workshop

The health records department is essential to the administration of a hospital, and its staff responsible for arranging the majority of hospital and patient contacts.

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1.0 Scope of Health Building Note 47

Introduction

1.1 Health Building Note (HBN) 47 is a guide to the planning and design of accommodation for the health records department (HRD) of a District General Hospital (DGH). It replaces that part of Hospital Building Note 18 - 'Administrative Department' (published in April 1963, reprinted with amendments in 1966, and (without further amendments) in 1970), which deals with the "Medical records department".

1.2 During the period since the publication of the last edition of HBN 18 in 1966, the purpose and organisation of the HRD has changed to take account of:

a. reorganisation and restructuring of administration of the National Health Service, and the introduction of general management;

b. changes in clinical practice;

c. increases in workload arising from:

   (i) the factors identified at (a) and (b) above;

   (ii) an increase in the number of patients attending hospital;

d. technological developments.

1.3 An HRD is essential to the administration of a hospital. HRD staff are responsible for arranging the majority of hospital and patient contacts. In 1989/90, the workload of hospitals in England included:

a. 36.3 million attendances to out-patients departments;

b. 7.5 million finished in-patient consultant episodes;

c. 1.2 million day case admissions;

d. 0.9 million ward attendances.

Terms used in this Health Building Note

1.4 To assist readers, certain terms and expressions used in this Note are defined in the following list:

a. **Health records department**
The term "health records department" (HRD) includes all accommodation dedicated to health records activities, including offices, support spaces, case note and microfilm libraries, microfilm workshop and utility rooms. Some health records functions, such as the reception of out-patients, are undertaken outside the HRD;

b. **Health records manager**
The Health records manager (HRM) is the manager of the HRD and sometimes known as the:

   (i) Medical records officer;

   (ii) Medical records manager;

   (iii) Health records officer;

   (iv) Patient services officer;

   (v) Patient services manager;

c. **Supervisors**
Sections of the HRD, for example, admissions office and clinical coding office, may have their own supervisor. Normally, a supervisor works with staff in the section concerned and does not need an office;

d. **Health records**
This is a general term which encompasses all types of personal health records, for example, accident and emergency records, x-ray films and reports, records of paramedical departments, general medical practitioner records, community nursing records and case notes (see (e) below);

e. **Case note**
The case note is the general medical record of a patient attending hospital. It comprises, for example, medical and nursing notes, investigation results and correspondence. The case note may also be known as medical record, case sheet, case record, file, chart, patient record and patient folder. In the HBN, the term case note refers to hard copy records (that is, in paper form), usually held in one or more A4 manila folders in the HRD library. Case note folders are described in Appendix 1.

Inclusions

1.5 This Note provides information on the planning and design of a department which always has three main components and may include a fourth (optional) component:

a. the health records office (HR office);

b. the health records library (HR library);

c. the health records admissions office (HR admissions office);

d. the health records microfilm workshop (HR microfilm workshop) (Optional Accommodation and Services).

In this Note, the accommodation outlined above is referred to as the "HR office", the "HR library", the "HR admissions office" and the "HR microfilm workshop" respectively.

Exclusions

1.6 This Note does not contain guidance on accommodation for:

a. staff who may be responsible to the HRM but who work in various wards and departments: this is described in the relevant HBN. Examples include:

   (i) ward clerks (see HBN 4 - 'Adult acute ward' and other HBNs for ward accommodation);

   (ii) clerical and secretarial staff (including receptionists) in out-patients and paramedical departments (see, for example, HBN 12 - 'Out-patients department' and HBN 6 - 'Radiodiagnostic department');

   (iii) medical secretaries (see HBN 18 - 'Office accommodation in health buildings');

   (iv) staff who manage and provide computing and information services (see paragraph 2.4 and HBN 18 - 'Office accommodation in health buildings');

b. the secondary (archival) storage of case notes (see paragraph 2.19);

c. the storage of health records in the following departments, although some of the guidance will be relevant (see also paragraph 2.3):

   (i) radiodiagnostic department x-ray films of patients examined within the last two years, including previous films of these patients (see HBN 6 - 'Radiodiagnostic department');

   (ii) paramedical departments (see, for example, HBN 8 - 'Rehabilitation: accommodation for physiotherapy, occupational therapy and speech therapy' and HBN 15 - 'Accommodation for pathology services');

   (iii) genito urinary medicine clinic (see HBN 12 - Supplement 1 - 'Genito urinary medicine clinics');

   (iv) maternity department - for expectant mothers currently attending hospital (see HBN 21 - 'Maternity department');

   (v) A and E department - for two years after attendance (see HBN 22 – 'Accident and emergency department');

   (vi) acute mental illness units (see HBN 35 - 'Accommodation for people with acute mental illness').

Capricode

1.7 Capricode is the mandatory procedural framework governing the inception, planning, processing and control of individual health building schemes. The aim is to promote a consistent and streamlined approach to capital development that achieves best use of resources through the selection and construction of relevant and cost-effective schemes that open on time and within budget. It identifies the main activities and provides a framework for delegation with effective management and the proper accounting for expenditure and performance. (See 'Capricode Health Building Procedures' issued with HN(86)32 in October 1986 - in Wales, WHC(86)62).

Works Guidance Index

1.8 Whilst this Note provides guidance that is current at the time of publication, it must be borne in mind that there are wider considerations associated with high risk infectious diseases, fire, energy conservation, etc., covered by other published guidance which must also be taken into account. Additionally, some aspects of the guidance in this Note may from time-to-time be amended or qualified. Project teams should first check the current edition of the Works Guidance Index. Because the Index is published by the Department in May each year, and updated only in September and January, project teams should ensure that they investigate the possibility of changes not included in the latest published Index.

Cost allowances

1.9 The NHS is notified separately of the Departmental Cost Allowances for this Note.

Equipment

1.10 Equipment is categorised into four groups:

Group 1: items (including engineering terminal outlets) supplied and fixed within the terms of the building contract;

Group 2: items which have space and/or building construction and/or engineering service

requirements and are fixed within the terms of the building contract but supplied under arrangements separate from the building contract;

Group 3: as Group 2 but supplied and fixed (or placed in position) under arrangements separate from the building contract;

Group 4: items supplied under arrangements separate from the building contract, possibly with storage implications but otherwise having no effect on space or engineering service requirements.

1.11 Group 1 items are provided for in the cost allowances associated with this Note. The Equipment Cost Allowance Guide (ECAG) specifies a sum of money for Groups 2, 3 and 4.

2.0 General service considerations

Objectives of the department

2.1 The main objectives of the health records department (HRD) are:

a. to preserve and protect the records of personal health information of patients held by a hospital;

b. to complete all administrative tasks required to ensure that patients, their health records and relevant health professionals, are brought together at the right time and in the right place, and that appropriate follow-up action is taken;

c. to ensure that details of patient contacts are recorded in such a way that they may be processed to provide statistical information;

d. to manage space cost effectively by operating, in agreement with medical staff and senior management, realistic policies with regard to the retention, microfilming and/or destruction of case notes. Such policies should reduce the need for storage space to the minimum and may even remove the need for secondary (archival) storage;

e. to maintain confidentiality in handling personal health information of patients in all activities performed by the department.

Principal functions of the department

2.2 The principal functions of the three main components and the optional fourth component of the HRD described in this Note are:

HR office

a. managing the department;

b. communicating with health professionals, patients and others;

c. post and case note sorting;

d. raising, updating, making available and subsequently filing, the set of documents (that is, the case note) necessary for recording the identification, condition and treatment of each patient attending the hospital;

e. registering new case notes and maintaining a master patient index and other indexes and registers;

f. assembling case notes, for example, for out-patients clinics;

g. maintaining waiting lists, arranging in-patient admissions and out-patient and day-patient appointments, and receiving and documenting in-patients;

h. clinical coding and collecting, collating and producing data for a variety of clinical and managerial purposes;

j. providing access to health records for staff and other authorised persons

k. printing and photocopying;

HR library

m. filing, storing and retrieving health records, including:

(i) current case notes (as determined by local policy);

(ii) accident and emergency records, in microfilm format, of patients who have not attended the accident and emergency department for two years or more;

(iii) maternity records, excepting those of expectant mothers currently attending hospital;

(iv) case notes, in microfilm format;

(v) archival x-rays in microfilm format.

HR admissions office

n. maintaining waiting lists, arranging in-patient admissions and day-patient appointments, and receiving and documenting in-patients;

p. preparing documents and case notes for admissions;

q. maintaining bed state;

r. compiling and collating statistics;

HR microfilm workshop (Optional Accommodation and Services)

s. preparing case notes for microfilming;

t. microfilming case notes;

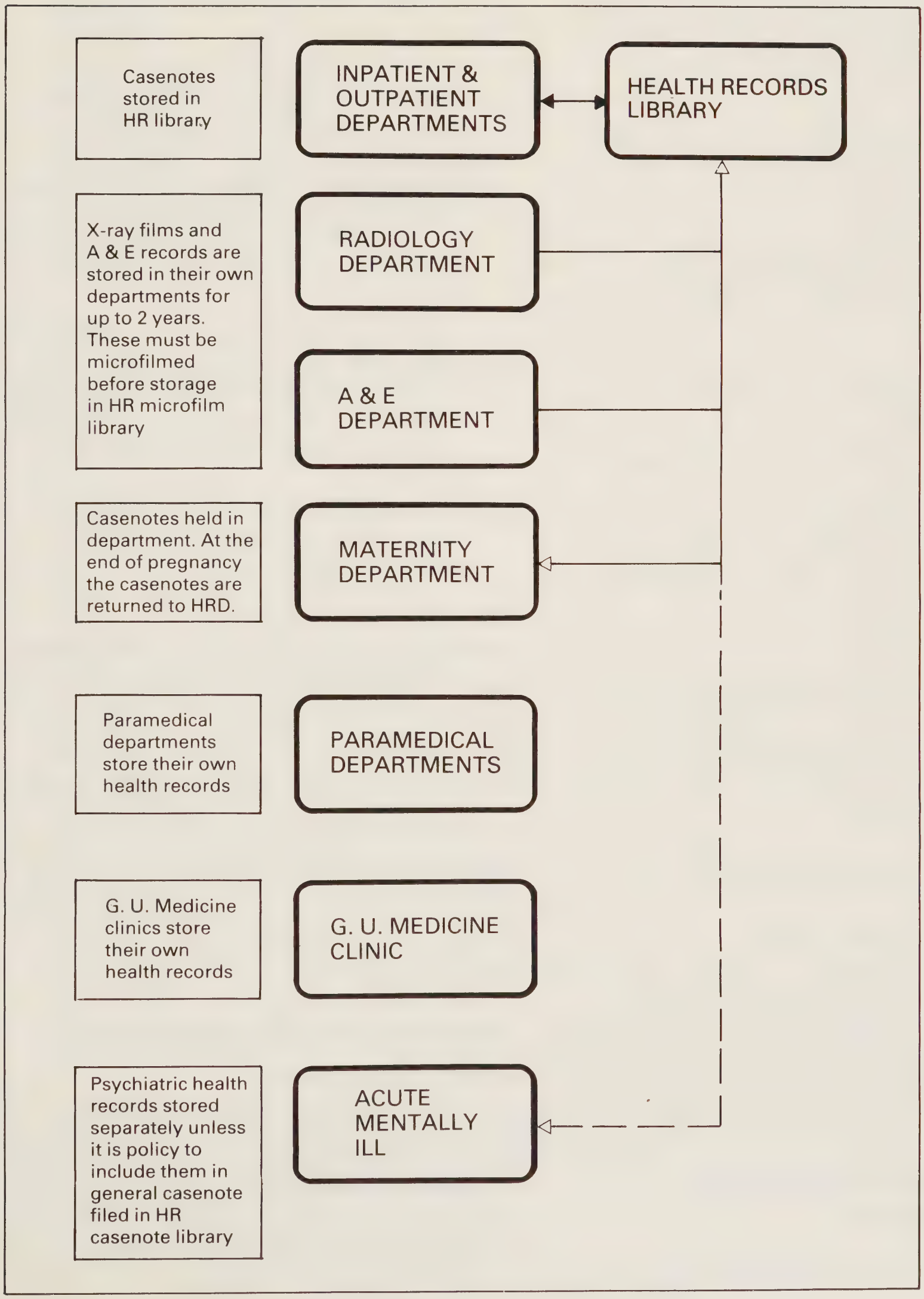
u. processing, finishing and indexing microfilm.

2.3 Project teams should ensure that adequate accommodation is provided for health records functions

performed elsewhere in the hospital (see paragraph 1.6 and Diagram 1). For day-to-day management, the staff concerned may be accountable to the manager of the department in which they are based or to the health records manager (HRM): professionally, all staff who perform a health records function, are accountable to the HRM.

2.4 Office accommodation for staff who manage and provide computing and information services may be provided in the HRD or elsewhere in the district: appropriate guidance is included in HBN 18 - 'Office accommodation in health buildings'.

DIAGRAM 1 STORAGE OF HEALTH RECORDS IN A D.G.H.



Trends and developments in health records services

Health service management

2.5 Reorganisation and restructuring of administration, and implementation of general management in the National Health Service has led to:

a. a change in emphasis from district based services to clinical or specialty managed services;

b. a requirement to produce increasingly detailed information:

(i) about clinical care;

(ii) for resource management, contracting and medical audit.

Delivery of health care

2.6 The task of retaining, transferring and retrieving case notes is likely to continue to increase as a result of changes related to the delivery of health care: factors involved include:

a. shorter average duration of in-patient stay;

b. an increase in:

(i) the number of out-patient and day-patient attendances;

(ii) the range of therapeutic procedures;

c. major demographic variations, for example, the increasing proportion of elderly people.

Information technology

2.7 Information technology has significantly influenced, and will continue to influence working methods in the HRD. The use of computers in hospitals is widespread and many HRD tasks can now be automated. Computerised patient administration systems (PAS) have been developed and include facilities for:

a. preparing and updating patient indexes and registers;

b. running appointment systems;

c. maintaining waiting lists;

d. operating in-patient administration systems;

e. coding clinical activity;

f. case note tracking.

Provision for Automatic Data Processing (ADP)

2.8 Automatic data processing (ADP) is widely used in hospitals and visual display terminals (VDT) and printers are now part of the everyday work of the HRD. This Note assumes that all office work-stations have a VDT.

2.9 Project teams should consider the need to provide sufficient space for:

a. special power supplies, modems, VDT's, printers and associated software and stationery;

b. wireways for data transmission cabling.

2.10 Matters of concern include:

a. **space** - office work-stations must have sufficient and convenient space for appropriate ADP equipment;

b. **visibility** - since the brightness of the text displayed on the screen of a VDT cannot exceed a certain limit, special attention must be given to the ambient lighting to ensure that the contents of the screen are legible;

c. **noise** - whilst much has been done to reduce the noise of printers by improved design of the moving parts, and of acoustic hoods, no printer is silent. For some environments, expenditure on quieter printers, or on means of quietening noisy printers, can be justified;

d. **confidentiality** - the screen of a VDT should be sited so that the displayed text is not visible to members of the public.

2.11 It is possible that ADP will replace the case note. New techniques for the storage of patients' records are in the experimental stage. Other developments, such as electronic communications with general medical practitioners' surgeries, will in the future have an impact on the work of the HRD. This Note gives guidance based on methods and practices in HRDs current at the time of writing. Project teams should ensure that they appraise themselves concerning the state of technological developments with regard to health records computing. They should also ensure that their proposals conform with local computing policies. Advice may be obtained from the Association of Health Care Information and Medical Records Officers (AMRO).

Factors affecting the size of a health records department

2.12 The size of an HRD is influenced mainly by the number of case note folders initiated, handled and stored for the hospital(s) served, which, in turn, is determined by:

a. the number of out-patient and day-patient attendances;

b. the number of in-patient admissions;

c. the range of specialties offered to patients.

2.13 The size of the HR library in particular is affected by:

a. the period of time that case notes are retained in the case note library after a patient's last contact with the hospital, prior to microfilming, destruction or transfer to secondary storage. Guidance on minimum periods of retention of records is contained in Department of Health Circular HC(89)20;

b. the type of storage media adopted. In the past, generally case notes were held only in paper form. Increasingly, HRDs are copying paper records to microfilm and vastly reducing the quantity of paper to be stored. The development of image processing systems is likely to extend further the opportunity for reduction in paper storage.

Functional unit

2.14 The functional units for the four components of an HRD are:

a. the office work-station;

b. the case note;

c. the admissions office;

d. the microfilm workshop, included as Optional Accommodation and Services (OAS).

Chapter 7 identifies two sizes of HR office and HR library, and lists the activity spaces and areas used for costing purposes in the Schedules of Accommodation.

Calculation of content of department

HR office

2.15 The calculation of the total number of office work-stations should include:

a. full-time members of staff working within the HR office;

b. part-time workers who require their own office work-station.

2.16 In determining the Schedules of Accommodation, it has been assumed that staff working outside normal office hours, who provide a case note service for emergency patients and undertake other routine duties such as filing and retrieval of case notes, will use the same office work-stations as the daytime staff. If staff are not employed outside normal office hours, then more staff will be required during normal office hours, together with more office work-stations.

2.17 Having calculated the total number of office work-stations, it is necessary to:

a. select the number of each type of office work-station: full descriptions of office work-stations Types 1 to 6 are given in HBN 18 - 'Office accommodation in health buildings';

b. select the number and types of other spaces, that is, some "Service spaces", "Office support spaces" and "Utility spaces" (see paragraph 3.11) required in the HR office;

c. decide how the office work-stations should be planned, that is, as single-person or multi-person spaces (see paragraph 4.4).

The form of the accommodation for all the spaces should then be determined, that is, cellular, open-plan or a proportion of each.

HR library

2.18 In calculating the size of the HR library, consideration will need to be given to the interrelated factors noted in paragraph 2.13 in the light of local policies and circumstances.

2.19 The Schedules of Accommodation assume that:

a. 100 case notes are filed per linear metre on shelving six levels high;

b. a policy for microfilming and destroying case notes is in force which:

(i) enables economic use to be made of the case note library;

(ii) obviates the need for secondary storage.

A microfilm library is included to facilitate this policy.

HR admissions office

2.20 One size of admissions office is described in this Note.

HR microfilm workshop

2.21 One size of HR microfilm workshop (OAS) is described in this Note: microfilming requirements of other departments in the District General Hospital are not taken into account. The need for the HR microfilm workshop should be decided locally. Options should be appraised, including comparative costs of in-house and contracted-out services.

3.0 General functional and design requirements

Introduction

3.1 This Chapter provides design guidance on the service objectives outlined in Chapter 2 and includes information on a range of topics which should be taken into account when designing a health records department. Other general functional and design requirements applicable to all health buildings are discussed in Chapter 5.

Design

3.2 Designers should create an aesthetically attractive environment in the health records department (HRD) which is conducive to efficient working and as quiet as possible, bearing in mind constant activity with telephones, office equipment, and the movement of people and of case note trolleys (see also paragraphs 3.47 and 3.48 below).

3.3 Office areas in the HRD should be pleasant and attractive places in which to work: the environment can be enhanced significantly by use of carpet, well designed office furniture and light fittings, and indoor planting. Careful consideration should be given to the orientation of the building, coordination of floor coverings, finishes, fixtures, fittings, furniture and furnishings, and choice of colours. Views to the outside, and good lighting (consistent with the operation of VDTs) and ventilation, are essential (see also paragraphs 5.25 to 5.30).

3.4 Designers need to be familiar with the detailed descriptions and diagrams in this Note which explain the methods of working in the HRD and ensure that sufficient space is provided for the movement and manoeuvring of case note trolleys within and between locations where they are used, including ready access to lifts.

Location within the hospital

3.5 Convenient access to the HRD should be provided from the main hospital circulation route. Large numbers of case notes leave and return to the department each day, usually on trolleys. Members of staff, patients and other authorised visitors may need to visit the HRD.

3.6 If the HRD is situated above ground level, attention must be given to the weight of case notes (see Appendix 1), and floor loading.

3.7 The HR library contains a high fire load and therefore constitutes a risk to life: this fact should be recognised when locating the HRD.

3.8 All wards and departments should be easily accessible from the HRD, but in particular project teams should ensure a satisfactory locational relationship between the HRD and:

a. **the out-patients department**
The preparation and dispatch of case notes for out-patient clinics forms a large proportion of health records work. There is constant movement of case notes and liaison of staff between the HRD and the OPD. It is not necessary for the two departments to be adjacent but routes between them should be as short and straightforward as possible;

b. **medical secretaries**
Case notes for the majority of patients are usually taken from the ward or department attended to the medical secretary's office for the preparation of clinical reports and letters, following which they are returned to the HRD. Offices for medical secretaries may be located at various parts of the hospital (see Health Building Note (HBN) 18 - 'Office accommodation in health buildings'). The system for the distribution and collection of case notes is a matter for local decision;

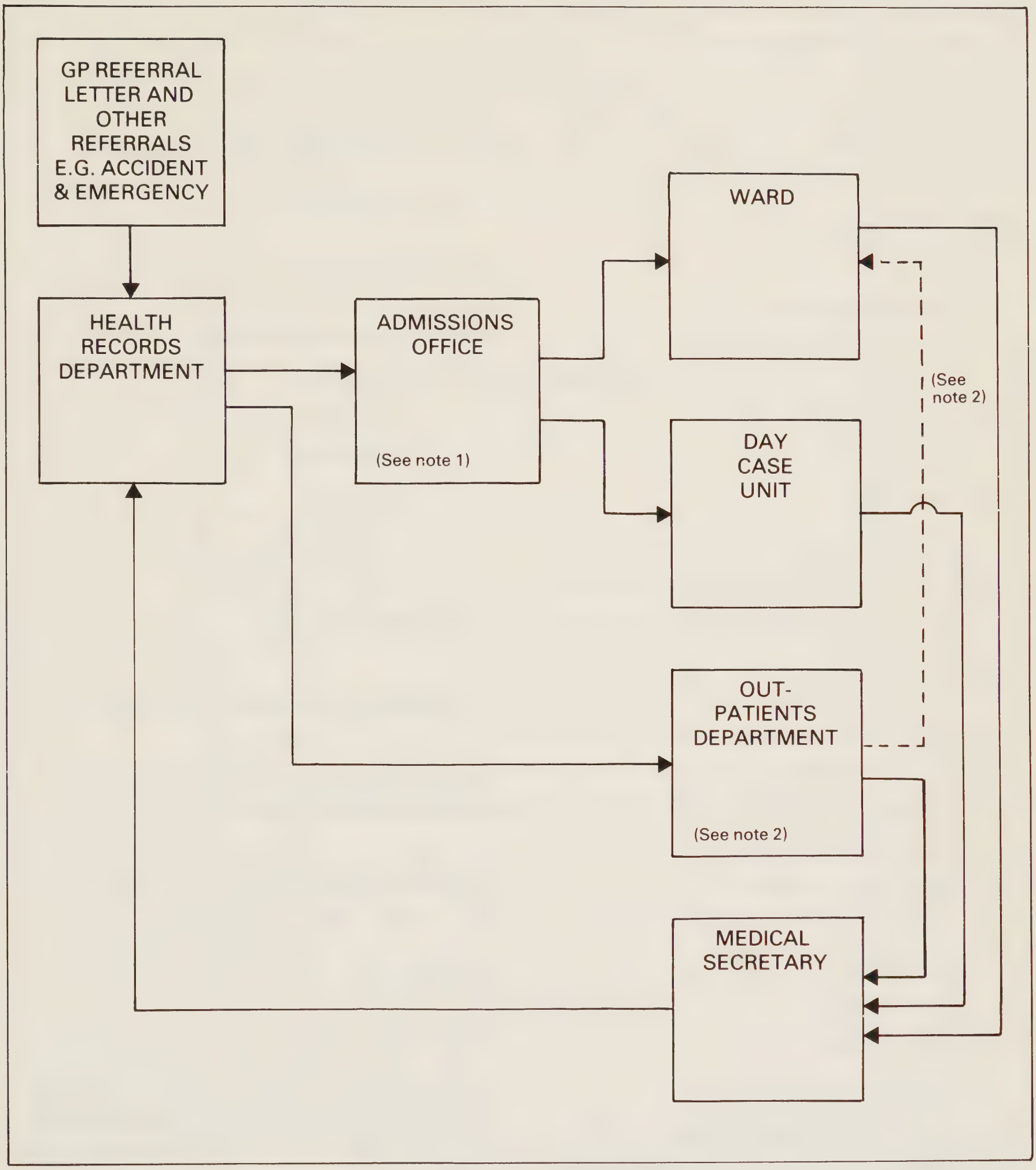
c. **accident and emergency department**
The accident and emergency department creates and stores (for two years after attendance) its own records, but may need the case notes of patients receiving emergency treatment;

d. **other departments**
Other HRD business is principally with the departments of radiology, pathology and clinical measurement services. Case notes, and x-rays and investigation reports, may be in transit separately. It is important, however, that they are available together at the time and place they are required, for example, out-patients clinics, the day-case unit and wards. Paramedical departments, such as dietetics and chiropody, keep their own records.

3.9 Diagram 2 shows the movement of case notes in a District General Hospital. The principal flow is between the HRD, the out-patients department (OPD) and medical secretaries. Case notes for in-patients and day-patients are sent to the wards and to the day case unit respectively: alternatively, they may be supplied via the admissions

DIAGRAM 2 FLOW OF CASENOTES IN A D.G.H.

PATIENT ATTENDING OUT-PATIENTS DEPARTMENT OR DAY CASE UNIT, OR RECEIVING IN-PATIENT TREATMENT



NOTES:

(1) The admissions office is part of HRD but is shown separately as it is often located in a different part of the hospital, e.g. Main Entrance.

(2) Casenote may go to a ward if patient is admitted directly from OPD.

office. Other health records, for example x-rays, may be sent by the radiology department to the HRD for collation with the case note, or directly to the OPD.

Categories of accommodation in the health records department

3.10 The HRD described in this Note comprises the HR office, the HR library, the HR admissions office and may include an HR microfilm workshop (Optional Accommodation and Services) (see Diagram 3).

Health records office

3.11 The HR office comprises:

a. **Management offices**
   - (i) health records manager's office
   - (ii) assistant health records manager(s) office
   - (iii) secretaries office
   - (iv) staff supervisors' office;

b. **Service spaces**
   - (i) postal point and case note sorting space
   - (ii) registration/documentation office
   - (iii) case note preparation office
   - (iv) reading room
   - (v) clinical coding office;

c. **Office support spaces**
   - (i) office machines room
   - (ii) waiting area
   - (iii) general/stationery store;

d. **Utility spaces**
   - (i) beverage bay
   - (ii) staff WC
   - (iii) staff cloaks
   - (iv) cleaners' room
   - (v) switchroom or cupboard.

3.12 Office work-stations defined in HBN 18 - 'Office accommodation in health buildings' are appropriate for the offices listed above. Chapter 4 of this Note identifies selected types of standard office work-stations and modifications which may be necessary for specific activities.

Health records library

3.13 The HR library comprises:

a. case note library;

b. microfilm library.

Health records admissions office

3.14 The HR admissions office comprises:

a. waiting area;

b. reception;

c. staff office.

Health records microfilm workshop

3.15 The HR microfilm workshop (OAS) comprises:

a. case note/documentation store;

b. preparation area;

c. filming room;

d. processing area;

e. finishing and indexing room;

f. general storage.

Provision for computer equipment

3.16 All office work-stations and office support spaces should include space and facilities for computer equipment appropriate to the activities of the space.

3.17 This Note has been prepared on the assumption that a computerised patient administration system (PAS) is in use. If the entire patient master index is not held on computer then extra space will be required in the registration/ documentation office for master index cabinets.

3.18 The office machines room should have space and facilities to accommodate printers which produce patient identification labels and case note documentation. If the main computer room is located some distance from the HRD, or is off-site, it may be necessary to provide a line printer in the office machines room.

DIAGRAM 3 CATEGORIES OF ACCOMMODATION IN THE HRD

HEALTH RECORDS OFFICE

- MANAGEMENT OFFICES
- SERVICE SPACES
- OFFICE SUPPORT SPACES
- UTILITY SPACES

HEALTH RECORDS LIBRARY

- CASENOTE LIBRARY
- MICROFILM LIBRARY

HEALTH RECORDS ADMISSIONS OFFICE

Usually located at the Main Entrance

HEALTH RECORDS MICROFILM WORKSHOP

This accommodation is optional. The work could be contracted out, depending on local policy

Workflow within the health records department

3.19 Workflow relative to principal activities within the HRD is illustrated on Diagrams 4, 5, 6 and 7, as indicated below:

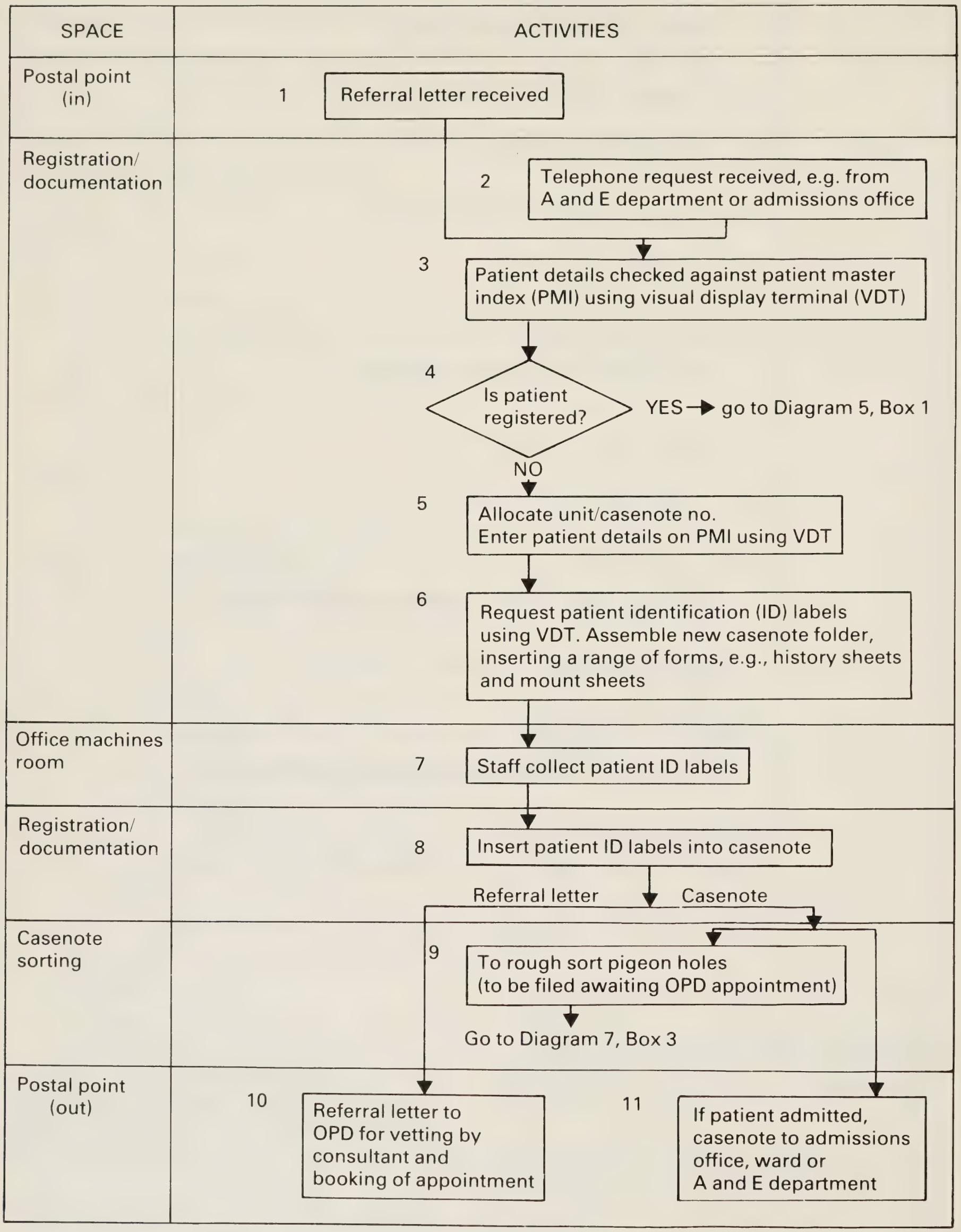
Diagram 4 - Registration process and creation of a casenote (for example, for new out-patient or emergency admission) Patient not previously registered;

Diagram 5 - Registration process and creation of a casenote (for example, for new out-patient or emergency admission) Patient previously registered;

Diagram 6 - Retrieval process for the casenote of a current out-patient;

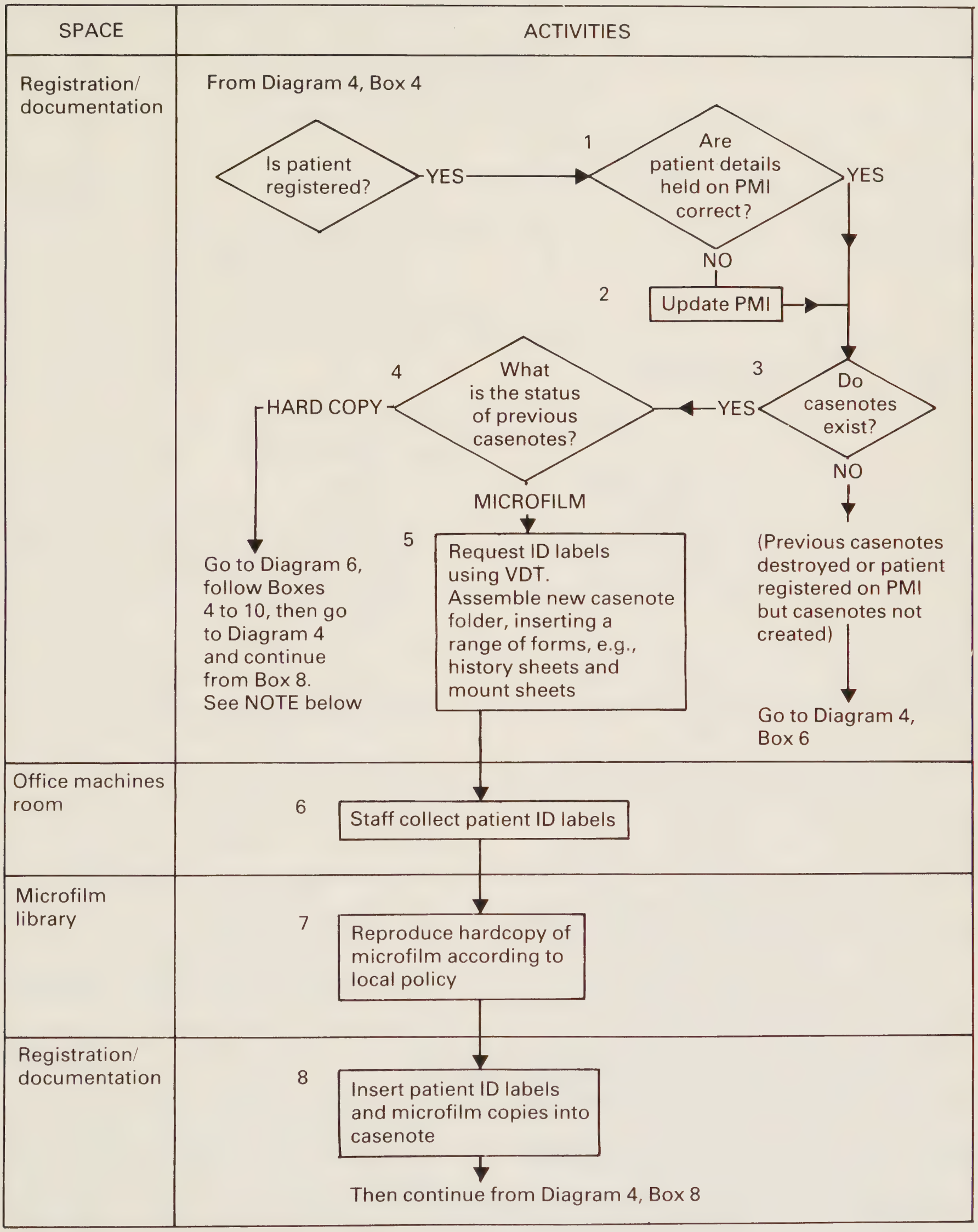
Diagram 7 - Process for casenotes returned to HRD.

DIAGRAM 4 REGISTRATION PROCESS AND CREATION OF A CASENOTE (E.G. FOR NEW OUT-PATIENT OR EMERGENCY ADMISSION)-PATIENT NOT PREVIOUSLY REGISTERED



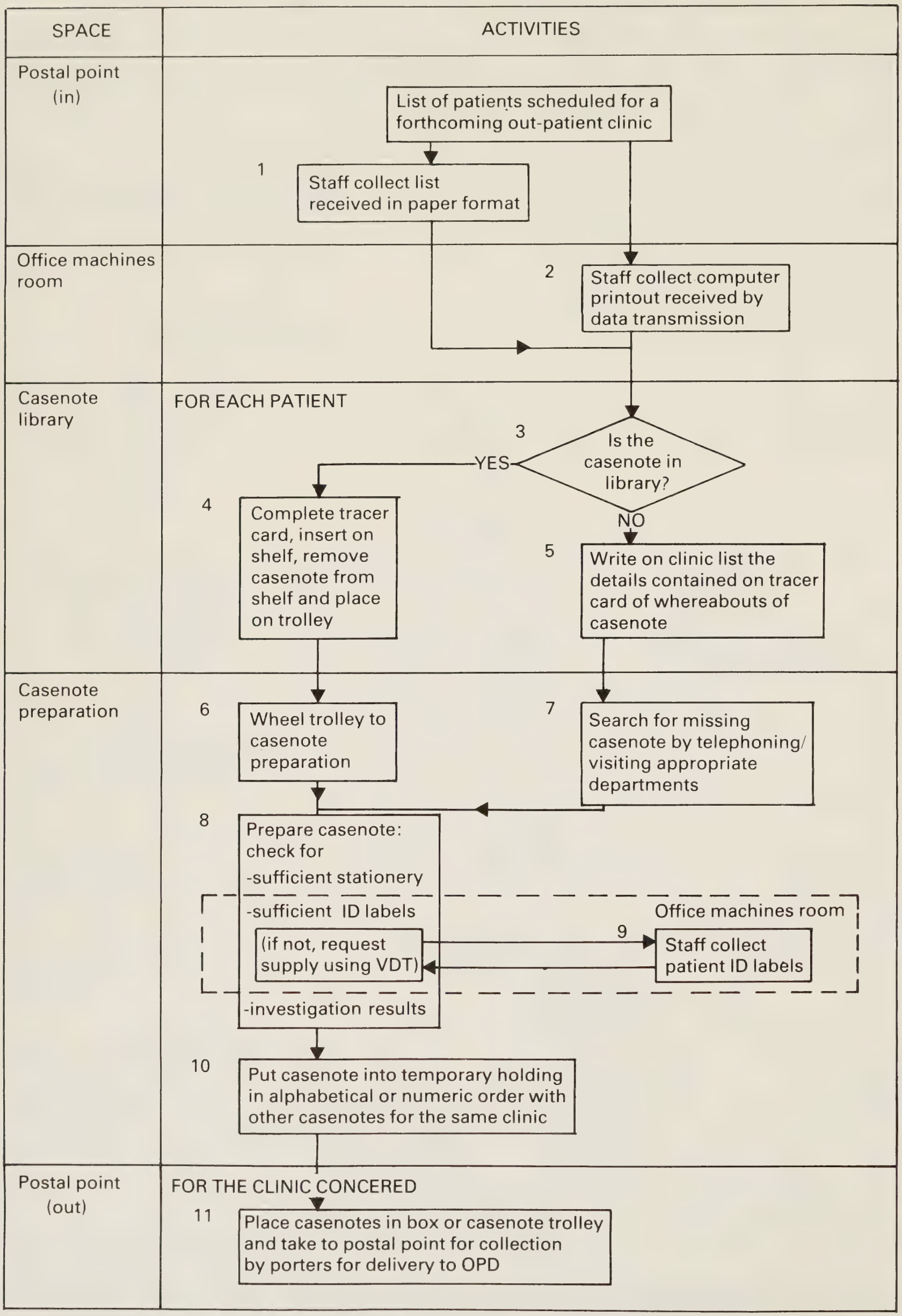
NOTE; Referral letter may be returned to HRD for filing in casenote or retained in OPD until casenote is received for the clinic

DIAGRAM 5 REGISTRATION PROCESS AND CREATION OF A CASENOTE (E.G. FOR NEW OUT-PATIENT OR EMERGENCY ADMISSION) - PATIENT PREVIOUSLY REGISTERED



NOTE: Previous hardcopy casenotes may be retrieved and assembled at this stage and then sent to OPD with the referral letter. This is one method.There will be others depending on local policy.

DIAGRAM 6 RETRIEVAL PROCESS FOR THE CASENOTE OF A CURRENT OUT-PATIENT



NOTE: A similar process applies in respect of most requests for casenotes.

DIAGRAM 7 PROCESS FOR CASENOTES RETURNED TO HRD

SPACE	ACTIVITIES
Postal point (in)	1 Casenotes returned (on trolleys or in boxes) from OPD, wards, medical secretaries and other departments
Casenote sorting	2 Casenotes put into rough sort pigeon holes (There may be local policies to extract certain casenotes for further action) 3 Casenotes put into strict number order and loaded on trolley
Casenote library	4 Trolley wheeled to casenote library, casenotes filed and tracer cards replaced in case notes

NOTE: Computerised casenote tracking systems (including the use of barcodes) will obviate the need for tracer cards.

3.20 It is essential that designers have a thorough grasp of the work of the HRD. This and the following section of the Note, including Diagrams 4, 5, 6 and 7, should be studied closely. Designs should be meticulously checked to confirm that all activities have been satisfactorily accommodated.

Planning relationships within the HRD

The health records office and the health records library

3.21 The most significant activity within the HRD is the movement of case notes between the postal point and case note sorting space, the registration/documentation office, the case note preparation office (in the HR office), and the case note library (in the HR library). To facilitate the transfer of case notes, the HR office and the HR library should be adjacent.

3.22 Physical separation of the HR office and the HR library will incur additional revenue costs, and may incur additional capital costs, particularly if the separation is vertical.

The health records office

3.23 The HR office component of the HRD comprises office work-stations where staff are based and other spaces with close operational relationships.

3.24 In an average DGH, approximately 700 case notes are despatched by, and returned to the HR office each day (see paragraphs 4.10 and 4.11). Additionally, internal and external mail leaves and arrives in the HR office in large quantities. Arrangements for the collection and delivery of the case notes, whether by health records trolleys or by porters' trolleys, is for local determination.

3.25 The registration of case notes and preparation of documents are key functions of an HR office and should be carried out in advance of a patient's attendance at hospital.

Management offices and service spaces

3.26 The health records manager's office, the assistant health records managers' office, the secretaries office and the staff supervisors' office should be close to each other. Their location within the HRD is not critical to the operation of the department. Priority should be given to providing a quiet location.

3.27 The postal point and case note sorting space, the registration/documentation office and the case note preparation office constitute the main centre of case note handling and should be located close to each other.

3.28 Most of the work on case notes is done in the case note preparation office, where they are prepared for issue to users.

3.29 The principal activity is the assembly of sets of case notes for out-patients clinics. Staff are responsible for ensuring that case notes are available for all the patients attending a clinic, and for arranging the notes in the planned sequence of attendance (or according to local policy), in advance of the clinic session. The main source of case notes is the HR library. Case notes are prepared in the case note preparation office for issue in response to many other ad hoc requests made in writing and by telephone. Most will be from within the hospital but others from a variety of outside bodies.

3.30 To facilitate movement of large quantities of case notes, it is preferable if the clinical coding office is located in the HR office near to the case note library. However, the function may be totally or partly decentralised, depending on local policy. Options include:

a. supervisor and staff in an office located within the HR office;

b. supervisor and staff in an office located outside the HR office;

c. supervisor in an office within the HR office, with staff decentralised to ward or specialty level;

d. supervisor in an office outside the HR office, with staff decentralised to ward or specialty level.

Office support spaces

3.31 In planning the location of office support spaces within the HR office, careful consideration must be given to accessibility and frequency of use.

3.32 Spaces which are visited only intermittently need not be naturally lit.

3.33 The functions of the office machines room are integrated with the functions of the registration/ documentation office, the case note preparation office and the postal point and case note sorting space. The PAS facilitates the production of documentation, such as patient identification labels, appointment lists and case note retrieval lists. Staff in the registration/documentation office and the case note preparation office using the PAS make constant demands on linked printers in the office machines room.

Utility spaces

3.34 Utility spaces should be available for use by all staff working in the department. Access to the switchroom/switchcupboard will be restricted to works department staff.

Health records library

3.35 The case note library, and the microfilm library, are the principal storage areas in a hospital for current hard copy case notes, and microfilm copies of case notes, respectively. In most hospitals, the libraries must be accessible at all times. The case note library should be close to the postal point and case note sorting space, and the case note preparation office.

3.36 Staff should not work in the case note library except when retrieving and filing case notes. Case notes should be prepared, sorted and checked in the postal point and case note sorting space, the case note preparation office and the registration/documentation office.

3.37 The layout and accessibility of filing equipment must be decided at an early stage because it determines the arrangement of the lighting. Natural daylight is desirable but not essential. There must be lighting over each gangway, including gangways that will exist when mobile units are in operation (see paragraph 6.47).

3.38 Appendix I describes case note folders, case note density and weight, filing methods and filing equipment. Appendix 2 describes a method for determining the linear measure of shelving required in a case note library.

Health records admissions office

3.39 The function of the admissions office is to provide a good control centre for staff dealing with both elective and emergency admissions and maintaining waiting lists. Patients being admitted to wards or the day case unit are, subject to local policy, received at the admissions office for the completion of documentation. The admissions office should, therefore, be conveniently located for patients en route to wards and the day case unit: in most instances, this will be the main entrance of the hospital.

Health records microfilm workshop

3.40 The location of the HR microfilm workshop (OAS) is not critical to the function of the HRD but should be conveniently sited for the delivery and collection of case notes in bulk.

Future expansion of the health records department

3.41 Expanding the HRD can lead to unacceptable levels of disruption to the service provided, with consequent problems for other departments, and excessive capital and revenue costs. The need to expand the HRD may result from service developments and "natural" growth in workload. When planning the HRD, it is important to consider the possibility of future expansion.

3.42 Options for accommodating increased quantities of case notes in the case note library include:

a. reserve space adjacent to the case note library for a later phase, "lease" to appropriate other users, and reclaim when required;

b. reserve land adjacent to the case note library to allow the building to be extended at a future date;

c. adjust the microfilming policy and/or destruction policy to reduce the number of case notes, thus releasing existing storage space.

3.43 Accommodation for additional other spaces can be created by:

a. relocating (reasonably close to the HRD) the clinical coding office and/or certain management offices;

b. employing extra staff out of normal working hours, so that office work-stations and support spaces can be used more intensively.

Security

3.44 Confidentiality of case notes must be maintained at all times: the HRD must be secure. During normal working hours, unauthorised entry can be prevented by staff working within view of the entrance to the department, but the security of staff working alone at night must also be considered. Unauthorised access to the department should not be possible.

3.45 Assaults on hospital staff and theft of NHS property are recognised problems. The project team should discuss security with the officer in charge of the local Police Crime Prevention Department and the hospital or district security officer or adviser at an early stage in the design of the building. Fire and Security Officers should be consulted concurrently because the demands of security and fire safety may sometimes conflict. The attention of planners is drawn to Circular HN(84)26, dated December 1984 (in Wales, Circular WHN(85)1), about Security, and the NHS Security Manual issued with the Circular.

3.46 Where violent incidents are foreseeable, employers have a duty under Section 2 of the Health and Safety at Work Act to identify the nature and extent of the risk and to devise measures which would provide a safe workplace and a safe system of work. Such measures should reflect the guidance given in the Health Service Advisory Committee report 'Violence to staff in the health services', issued in 1987.

Noise and sound attenuation

3.47 Any unwanted sound is a noise. Unnecessary sound insulation may be avoided by careful planning. In open-plan office areas, noise can be reduced by the use of soft floor coverings, curtains and acoustic treatment of walls and ceilings.

3.48 Attention should be paid to sound attenuation in cellular offices used for personal interviews and confidential meetings; sound transmission may be reduced by sound containing partitions and doors.

Flooring

3.49 The floor covering should contribute towards the creation of an attractive environment and not present a hazard to disabled people. or the movement of wheeled equipment. Office floors should be carpeted. Surface drag, static electricity and flammability are other factors which need to be considered. (See also Health Technical Memorandum 61 - 'Flooring'.)

Damage in health records departments

3.50 The doors, floor and wall surfaces, and furniture of HRDs must all withstand the constant traffic of case note trolleys and supply trolleys. To minimise damage, consideration should be given to the use of protective corners and plates, and to proper continuation of floor surfacing. Protective devices should be capable of being renewed as need arises. Reference should be made to the relevant British Standards, DS (Supply) letter 42/75 dated 5th August 1975 and Health Technical Memoranda 56 - 'Partitions', 58 - 'Internal doorsets' and 61 - 'Flooring'.

Maintenance and cleaning

3.51 Materials and finishes should be selected to minimise maintenance and be compatible with their intended function. Health Technical Memoranda 56 - 'Partitions', 58 - 'Internal doorsets' and 61 - 'Flooring' give guidance on these matters.

Smoking

3.52 Health Circular HC(85)22 dated May 1985 (WHC(85)31 dated June 1985 in Wales) provides guidance about smoking on health premises. While recognising that the responsibility for determining local policies rests with the health authority, the circular recommends that smoking should be restricted as far as is practicable and, where it is permitted, confined to specially designated areas which are clearly signposted. Particular consideration should be given in designating smoking areas in offices: for open-plan offices, this is especially important. In such areas ventilation should be sufficient to prevent discomfort to non-smokers and the spread of odours to other areas of the premises. In no circumstances should smoking be permitted in the case note library and the microfilm library.

4.0 Specific functional and design requirements

Introduction

4.1 This Chapter provides guidance on the functional requirements and design implications for each of the activity spaces required in a health records department (HRD).

4.2 The relationships of principal activity spaces are illustrated on Diagram 8. Lists of activities and equipment, and details of environmental conditions and finishes of walls, floors and ceilings are all identified in the Activity Data sheets (see Chapter 8). Reference should also be made to the relevant Health Technical Memoranda covering Component Data (see paragraph 5.32 and Bibliography).

Office work-stations

4.3 Reference is made to various Types of office work-stations in the offices described below. Detailed information about office work-stations Types 1 to 6 is given in Health Building Note (HBN) 18 - 'Office accommodation in health buildings': details are not repeated in this Note.

4.4 Project teams will need to decide which office work-stations should be provided in open-plan form and whether some members of staff require the privacy afforded by an enclosed space or cellular office (see HBN 18 and Diagram 9).

Health records office

Management offices

Health records manager's office

4.5 A Type 2 or Type 3 office work-station is recommended for the administrative and clerical work, small formal meetings, informal discussions and confidential interviews which take place in a health records manager's (HRM) office.

Assistant health records managers' office

4.6 Type 3 office work-stations are recommended for the assistant health records managers. Activities include administrative and clerical work, informal discussions and confidential interviews.

Secretaries office

4.7 Secretarial staff carry out clerical and secretarial work for the managers and other staff, and attend to visitors to the department. Type 5 office work-stations are recommended and should be adjacent to the managers' offices.

Staff supervisors' office

4.8 An office base is required in which staff supervisors can carry out administrative and clerical tasks, such as the preparation of reports, references and rotas, conduct interviews and counsel staff. Some of the activities demand privacy and quietness. A Type 3 office work-station is recommended.

Service spaces

Postal point and case note sorting space

4.9 The main activities in this area are the dispatch of case notes from the HRD, and receipt and sorting of case notes returned to the HRD.

4.10 Approximately 500 case notes are likely to leave the HRD each day for the OPD. Case notes are normally loaded on trolleys or in boxes from the temporary holding facility in case note preparation. The trolleys or boxes may be delivered to OPD by HR staff or porters. It will be necessary, therefore, to allow space for the parking of trolleys or boxes awaiting collection. Approximately a further 200 case notes are likely to be dispatched from the HRD each day to various departments, for example, day case unit, and accident and emergency department.

4.11 Large numbers of case notes (700 approximately) are returned to the HRD each day on trolleys or in boxes, according to local practice. The case notes are unloaded from the trolleys or boxes to a worktop where they may be checked-in using a VDT keyboard, or a light pen if a computerised case note tracking system is in use. Case notes are then rough-sorted into a set of pigeon holes. The design of the pigeon holes will depend on local practice and preference. If a terminal digit filing system is used then either 10 large pigeon holes or 100 smaller pigeon holes are needed. One arrangement is for the pigeon holes to be placed above the worktop. After rough-sorting, the case notes in each pigeon hole are sorted into strict number order (using the worktop for sorting) and loaded on a trolley to await filing in the case note library. The time of day when sorting and filing are carried out depends on local practice.

4.12 The dispatch and return of case notes also depends on local practice: for example, three to four trolley loads of case notes may leave the HRD for OPD early in the morning and then during the day four trolley loads of case

DIAGRAM 8 RELATIONSHIP OF PRINCIPAL ACTIVITIES IN THE H.R DEPARTMENT

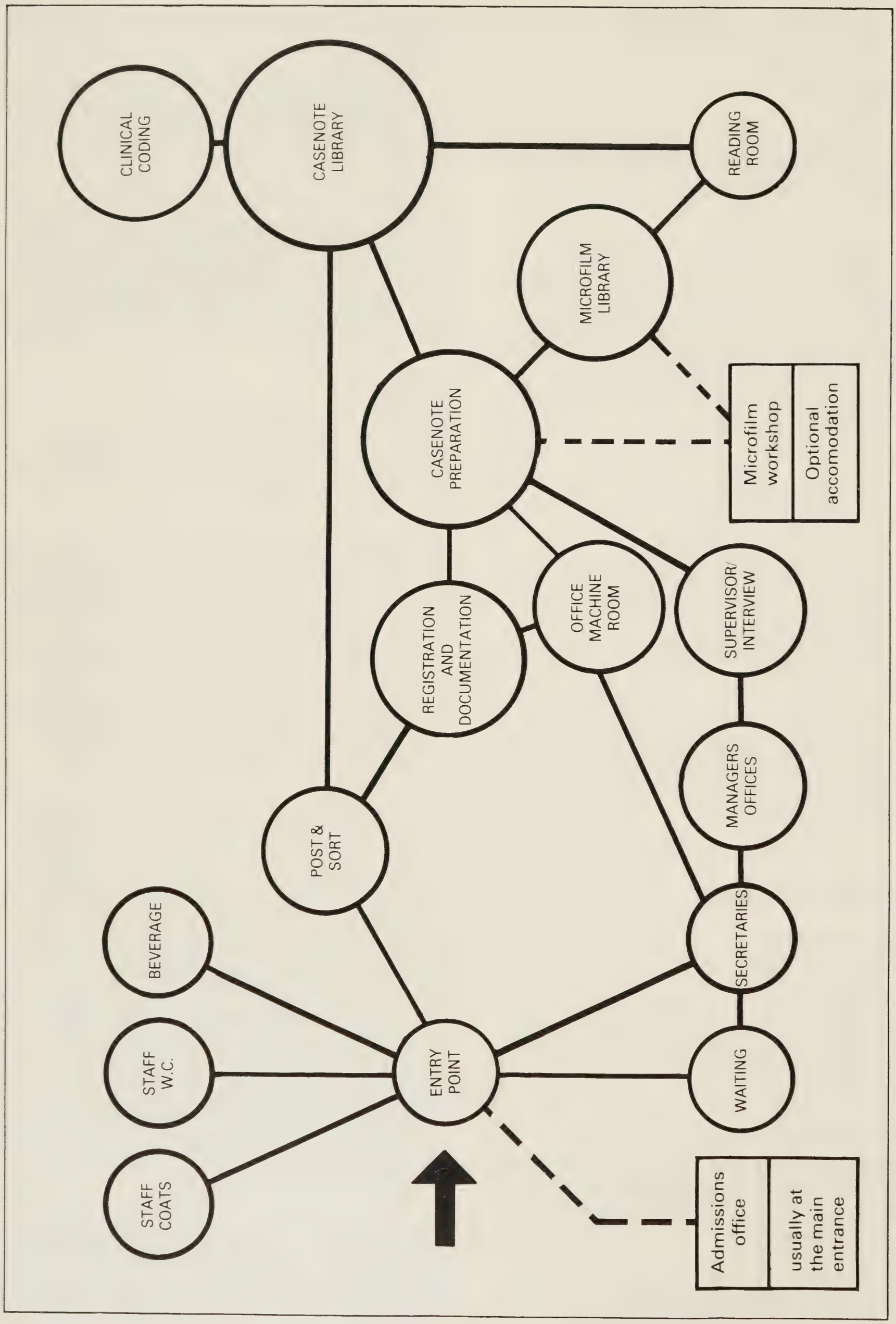


DIAGRAM 9 DISTRIBUTION OF WORKSTATIONS IN HRD (20 WORKSTATION SIZE HR OFFICE AND ADMISSIONS OFFICE)

	NUMBER OF WORKSTATIONS		
HR MANAGERS	3	CELLULAR/OPEN PLAN	TYPE 2/3
HR SUPERVISOR	1	CELLULAR (for interviews)	TYPE 3
HR SECRETARIES	2	OPEN PLAN	TYPE 5
HR STAFF ON CASENOTE PREPARATION	8	OPEN PLAN	TYPE 6
HR STAFF ON REGISTRATION & DOCUMENTATION	2	OPEN PLAN	TYPE 6
CLINICAL CODING STAFF	4	CELLULAR	TYPE 6
ADMISSIONS STAFF	5	OPEN PLAN	TYPE 6

notes be returned to the HRD from various departments. Space is required, therefore, in the postal point and case note sorting area for the temporary parking and manoeuvring of up to four case note trolleys. Further case note trolleys may be in use in other areas of the department, for example, the case note preparation office, and clinical coding office.

4.13 General post is normally received in large quantities in an HRD. It will include both letter type post and large envelopes containing case notes returned from other hospitals. It is necessary, therefore, to provide a receptacle for receiving incoming mail, for example, a box or bin (possibly mobile) and receptacles for outgoing mail, internal and external, for example, boxes, bins or mail sacks. The postal boxes or bins may be located under the case note sorting worktop.

4.14 Incoming mail is normally sorted on the worktop by a member of the HR staff and handed to the appropriate personnel within the HRD. Any member of staff may place items in the outgoing postal boxes or bins.

4.15 As staff are not based permanently in the postal point and case note sorting space, an internal location may be acceptable.

Registration/documentation office

4.16 Principal activities in this space are opening and sorting referral letters from general practitioners, checking the computerised master patient index, registering new case notes and producing case note documentation. Type 6 office work-stations are appropriate: they should be arranged to provide good communication with, and easy access to, the case note preparation office, the postal point and case note sorting space, and the office machines room.

Case note preparation office

4.17 Type 6 office work-stations are recommended for a case note preparation office. Space should be allocated for parking a case note trolley next to each office work-station; the layout must permit the manoeuvring of trolleys. The principal flow of case notes into the case note preparation office will be from the case note library and it is important that there is easy access between the two spaces. Storage is provided in Type 6 office work-stations for temporarily holding case notes assembled for out-patients clinics.

Reading room

4.18 Good practice dictates that case notes should not be removed from the HRD except for reasons of direct patient care. In the reading room authorised members of staff consult case notes or microfilm for research purposes. A worksurface for two people for reading case notes, and writing, and two desks equipped with microfilm readers, are required. The room should be located near to staff working spaces to facilitate staff contact/supervision.

Clinical coding office

4.19 The main activities carried out in this office are coding of clinical data from case notes and collation of patient activity statistics. Type 6 office work-stations are recommended, which include storage for statistical reports. Space should be provided to park a case note trolley next to each desk; the layout must permit the manoeuvring of trolleys.

4.20 The office work-stations for clinical coding require a quiet environment and should be near the case note library if located in the HRD (see paragraph 3.30).

Office support spaces

Office machines room

4.21 The main functions of this room are printing of documents and labels, photocopying, and storing a stock of copy paper, computer labels and stationery. Equipment may include printers linked to VDTs and word processors located at office work-stations, a line printer, a photocopier and a paper shredder.

4.22 Office machines may be noisy and generate heat, and some machines, for example, photocopiers, also generate pollutant gases. Concentrating them in one location is convenient for users and makes the provision of sound attenuation and ventilation more economic. This is a space to which the advice on "core areas" in paragraph 5.30 applies.

Waiting area

4.23 A small waiting space with up to six chairs for visitors to the department should be located near the managers' office and the reading room.

General/stationery store

4.24 Large quantities of stationery are used in the HRD: some items, such as case note folders, computer paper and labels, are bulky. A standard range of stationery is used routinely and a store to accommodate a back-up supply in support of stocks held at points of use is essential. Miscellaneous other items may also be held in this store.

Utility spaces

Beverage bay

4.25 Beverage making facilities, with storage for a small amount of crockery, a refrigerator and facilities for washing-up, should be easily accessible from the office work-stations. Consideration may be given to installing a beverage/snack vending machine, depending on local catering policy.

Staff WCs

4.26 WC facilities for staff should be easily accessible from the office work-stations and provided in accordance with statutory requirements. A unisex WC for use by disabled people should be included, unless suitable facilities are available in a nearby alternative location.

Storage of coats, etc.

4.27 Facilities for the storage of outer garments and personal belongings are required. In open-plan offices, cupboards may be provided (which also can accommodate bulky personal belongings). In cellular offices, coat hooks, or hat and coat stands, should be provided. Small personal items may be stored securely at the office work-station, for example, in a lockable desk drawer.

Cleaners' room

4.28 The cleaners' room is the base for in-house or commercial contract domestic services staff. It should include storage for cleaning materials and equipment in daily use, and facilities for the routine servicing and cleaning of equipment. Access routes should permit equipment to be moved to and from the room without difficulty.

4.29 Space should be sufficient for storing and manoeuvring cleaning machines, for loading, parking and unloading trolleys, and for emptying and filling buckets and bowls. Access to the sink should be unrestricted. The room should be well lit, and ventilated so that equipment can dry quickly.

4.30 Small security lockers for storage of small items of personal belongings, such as handbags, etc., may be required.

Switchroom or cupboard

4.31 A switchroom or cupboard is required to accommodate the electrical installation control equipment. The room should be kept dry and well ventilated; and the door should be lockable, and open outwards. If an electricity supply of adequate capacity is conveniently available from an existing switchroom, secure sub-distribution switchgear cupboards will suffice.

Health records library

Case note library

4.32 The case note library is the largest, but least complex, space in the HRD. In most libraries, case notes are stored on fixed and/or mobile shelving units. Other items of equipment used in the case note library are kick stools for access to upper level shelves and case note trolleys for the movement of case notes. To facilitate the completion of tracer cards, trolleys with writing flaps may be used.

4.33 Consideration should be given to the provision of automatic doors at the entrance to the case note library.

4.34 Further information to assist in the planning and design of a case note library, including descriptions of a case note folder, filing methods, and filing equipment, is given in Appendices 1 and 2.

Microfilm library

4.35 The microfilm library is equipped with fireproof cabinets in which microfilmed case notes are stored. Additionally, a work-station for reading microfilms should be included and, according to local policy, a work-station for making duplicates and/or reproductions on hard copy. The microfilm library should be close to the case note preparation office and the reading room.

Health records admissions office

4.36 The HR admissions office is sub-divided into three main areas:

a. the waiting area, for patients;

b. the reception, where patients are received by staff;

c. the office, for health records admissions staff.

Waiting area

4.37 This space, with up to ten comfortable seats, should be conveniently located off the main entrance concourse and may form part of the main entrance waiting area: irrespective, it should be identifiable for use by patients awaiting completion of admission procedures. The interior decor should be in harmony with the main entrance area and have carpeted floors and be pleasantly lit: the environment should engender feelings of reassurance and comfort.

Reception

4.38 The reception should allow the patients admissions procedures to be completed in privacy. Sufficient working space should be provided for two receptionists with VDTs.

Staff office

4.39 Between two and four Type 6 office work-stations should be provided and the area planned as part of the same space as the reception. Space is also required for printers linked to computer terminals at reception and the office work-stations, and storage for stationery. The printers and storage should be screened from public view.

Health records microfilm workshop

Case note/documentation store

4.40 A store is required where case notes can be temporarily held:

a. while awaiting microfilming, on shelves;

b. after microfilming, while awaiting collection for destruction, on shelves or in bags.

4.41 Regular deliveries and collections of case notes reduce the amount of storage space required. Frequency will need to be arranged in relation to the size of the store. To facilitate transfer of case notes, the store should be located near to the entrance to the microfilm workshop.

Preparation area

4.42 Prior to microfilming, staples and pins, etc., and superfluous documents, are removed from case notes and put in disposal bags on sack stands. The preparation area should be close to the case note/documentation storage area; it may be included in the filming room.

Filming room

4.43 Case notes are microfilmed in the filming room. A variety of cameras are available, including rotary cameras and planetary cameras, which may be desk-top or free-standing: all may be linked to a computer for indexing and retrieval purposes. The manufacturer's specifications of dimensions, services required and if, and to what degree, blackout facilities are necessary, must be known. At least one camera, having similar performance characteristics to others, specifies close environmental tolerances which could invoke significant additional engineering cost (see paragraph 6.70 for engineering services implications). Choice of cameras will depend on local policy and preference, but the aforementioned factors should be taken into account when selection is being made.

4.44 Worktops are required for desk-top cameras. The space should be large enough to park and manoeuvre a case note trolley.

Processing area

4.45 Following exposure, films are taken to the processing area where they are developed and fixed in daylight processor(s), which require water supply and waste pipe connections as specified by the manufacturer. Processors which require softened and filtered water incur significant additional engineering cost (see paragraph 6.71 for engineering services implications). Film processors should be carefully selected, taking into account functional requirements and any additional installation costs.

4.46 A worktop, and a storage cupboard for developing and fixing fluids, are required.

4.47 The location of the processing area should relate to the workflow of the workshop, that is, between the filming room and the finishing and indexing room.

Finishing and indexing room

4.48 There are three common methods of finishing and indexing microfilm:

a. **ordinary roll film**
Details of case notes held on a particular roll are typed on a label, which is then stuck to the cartridge case of the roll of film;

b. **microfilm jackets**
Processed films are loaded on a reader/filler machine, cut and mounted into plastic jackets, and the index details of the individual patient are typed on the heading of the jacket;

c. **computer-assisted retrieval**
Special blip-coded film is used for this method. The processed film in its cartridge is loaded into a reader machine and the index details of the individual patient are entered into a computer using a VDT.

4.49 The equipment and worktops required in this area will depend on the chosen finishing method. The final product, i.e., cartridges of roll film or microfilm in jackets, is transferred to the microfilm library in the HRD for permanent storage.

General storage

4.50 Storage space is required for back-up stocks of developing and fixing fluids, unprocessed film jackets and other supplies.

5.0 General guidance

5.1 This Chapter contains additional guidance concerning aspects of function and design which are common to all health buildings.

Statutory and other requirements, including Crown immunities

5.2 This Note takes account as far as possible of all statutory and other requirements in force at the time of publication, but health authorities are reminded of their responsibility for ensuring compliance with all relevant statutes, regulations, codes and standards. Advice on this is given in HC(88) 60/HC(FP) (88)29 - in Wales, WHC(89) 20.

5.3 With the general removal of Crown immunity from the NHS from 1 April 1991 and the setting up of NHS Trusts, building and planning law are legally enforceable on the NHS. Guidance on the removal of Crown immunity is given in HN(90)27/LASSL(90)15 - in Wales, WHC(91)4 - in respect of a wide range of legislation.

5.4 With regard to this Note in particular, attention is drawn to the Offices, Shops and Railway Premises Act 1963. Health Authorities are also reminded that office premises, whether in an entirely separate building or within only part (or parts) of a building, may require a fire certificate under the Fire Precautions Act 1971; they are responsible for applying to the Home Office for the fire certificate. Although certain office premises may not need a fire certificate, they are still subject to Regulations made under the Fire Precautions Act. Office premises are defined in the Offices, Shops and Railway Premises Act 1963.

Fire precautions

5.5 It is essential that project teams familiarise themselves with the guidance in the FIRECODE series of documents which contain the Department's policy and technical guidance on fire precautions in hospitals and other NHS premises. In particular, the need for structural fire precautions and means of escape from the whole accommodation must be taken into account at the earliest possible planning stage. They key document for these aspects in new hospitals is 'FIRECODE: Fire Precautions in new hospitals', Health Technical Memorandum (HTM) 81.

5.6 In addition, basic policy, principles and key document management guidance are contained in 'FIRECODE: Policy and principles'. Other FIRECODE documents include the Health Technical Memoranda '80' series (which give technical guidance on various building, engineering and equipment issues), the Fire Practice Notes series (dealing with various specialist aspects of fire precautions) and Nucleus guidance. Existing HTMs will, in due course, be reissued in FIRECODE format. The series includes 'FIRECODE: Directory of Fire Documents' which lists references to relevant legislation and relevant fire precautions guidance issued by DH and other sources, for example, the Home Office.

5.7 FIRECODE and publications in the HTM 80 series are listed in the Bibliography at the end of this HBN.

5.8 It is important to establish during the design stage those aspects of fire safety strategy which affect the design, configuration and structure of a project. At appropriate stages of the design process, the architect and engineer should discuss and verify their proposals with the local fire authority, and ensure that the project team and all other planning staff are fully acquainted with the fire safety strategy for the design in terms of operation (staff responsibilities etc), equipment provision, and buildings and engineering layouts. Health Technical Memoranda 57 to 60 give detailed information for the selection of fire resisting components.

5.9 The principles of fire safety apply equally to new projects and to alterations and upgrading of existing buildings.

Disabled people

5.10 It is essential to ensure that suitable access and facilities are provided for disabled people who have problems of mobility or orientation. This includes, besides the wheelchair-bound, those who for any reason have difficulty in walking and those with a sensory handicap such as a visual or hearing impairment. Authorities are reminded of the need to comply with the provisions of:

The Chronically Sick and Disabled Persons Act 1970;
The Chronically Sick and Disabled Persons (Amendment) Act 1976;
The Disabled Persons Act 1981;
The Disabled Persons (Services, Consultation and Representation) Act 1986;
The Building (Disabled People) Regulations 1987.

Attention is also drawn to BS 5810:1979 'Access for the Disabled to Buildings' (under review). One of the effects of the 1981 Act is to apply this British Standard to premises covered by the 1970 Act, which includes those open to the public. Practical guidance for complying with the Building (Disabled People) Regulations is issued by the Department of the Environment under Approved Document M: 'Access for the Disabled'.

5.11 Project teams are encouraged to refer to HBN 40 - 'Common Activity Spaces Volume 4 Designing for disabled people'. This gives guidance and a set of Ergonomic Data Sheets on access, space and equipment relating to disabled people in health buildings.

5.12 It is recommended that project teams consult local representatives of disabled people with regard to the planning of spaces in this department used by patients and escorts.

5.13 If public telephones are provided in the department, the telephone hand set should be fitted with an inductive coupler to assist people using a hearing aid.

Upgrading or adaptations of existing buildings

5.14 The standards set out in this guidance essentially apply to the provision of accommodation by new building and it is not intended that they should be applied retrospectively to existing stock. However, the principles are equally valid and should be applied, so far as is reasonably practicable, when existing accommodation is being upgraded or new accommodation is being constructed within an existing building, which may previously have been used for other purposes.

5.15 Before any decision is made to carry out an upgrading project, consideration must be given to the long-term strategy for the service, the space required for the new service, and the size of the existing building. Regard must also be paid to the orientation and aspect of the building and the adequacy and location of all necessary support services.

5.16 If a prima facie case for upgrading emerges, the functional and physical condition of the existing building should be thoroughly examined.

5.17 The check of physical and other aspects of existing buildings should include:

a. availability of space for alterations and addition;

b. type of construction;

c. insulation;

d. age of the buildings, condition of fabric, e.g., external and internal walls, floors, roofs, doors and windows, which may be determined by a condition survey;

e. life expectancy and adequacy of engineering services, ease of access and facility for installation of new wiring and pipework, if required;

f. the height of ceilings (high ceilings do not necessarily call for the installation of false ceilings which are costly and often impair natural ventilation);

g. changes of floor levels to obviate hazards to disabled people;

h. fire precautions;

j. physical constraints to adaptation such as load-bearing walls and columns.

5.18 When comparing the cost of upgrading or adapting an existing building to that of a new building due allowance, in addition to the building cost, must be made for the cost of relocating people, demolition, salvage costs, disruption of services in a phased project, and the temporary effects on running costs of any impaired functioning of areas affected by upgrading.

5.19 The cost of upgrading work should conform to the guidelines indicated in the Department's WKO letter (81)4 - (in Wales, AWO(81)8). Those guidelines take into consideration the estimated life of the existing building and the difference in cost between upgrading a building and new building.

5.20 Having decided that existing premises are suitable for upgrading or conversion, the main requirement will be to assess how best the accommodation can be adapted so as to facilitate good working practices. The main environmental factors which should be considered are the same as for new building. Upgradings must conform to current fire safety and other statutory regulations. It is very difficult to estimate the fire resistance of floors, walls and doors of existing buildings.

5.21 This summary of the main aspects of upgrading is general in character and it is recognised that each upgrading project will present its own individual problems. In many instances compromises may have to be made between Building Note standards and what is possible to achieve. Upgradings should be functionally sound - not merely cosmetic - and appropriate for the projected needs for a number of years to come.

Internal spaces

5.22 Internal rooms may contribute to economy in planning but the resulting continuous need for artificial lighting and mechanical ventilation will add to both capital and running costs. Such rooms do not provide good working conditions and staff may therefore be difficult to retain. Internal spaces should be used only for activities of infrequent or intermittent occurrence or which demand a controlled environment. Rooms that are likely to be occupied for any length of time should have windows.

Design features

5.23 The physical limitations of many people impose special demands on internal design and fittings. Reference should be made to the ergonomic drawings in Volumes 1 and 4 of HBN 40 - 'Common Activity Spaces'. Features requiring consideration are described in paragraphs 5.24 and 5.25.

Doors

5.24 Doors should be wide enough to allow a clear space for people using a walking aid and for the passage of wheelchairs and trolleys. Door springs should not be too strong, otherwise access for disabled people is very difficult. Lever handles should be 900mm above floor level. When glazed doors are provided, the size and height of the glass panels should be appropriate to requirements for visibility and privacy. If magnetic door closers are required to meet fire regulations, they should be carefully selected to minimise interference with day-to-day activities. Reference should be made to HTMs 58 and 59 for information on suitable components and for further guidance.

Windows

5.25 Clear glazing, providing an outlook for staff, should be provided in as many spaces as possible. Windows should be easy to clean both on the inside and on the outside. Other aspects which need to be considered are illumination and ventilation, thermal loss or solar gain, energy conservation, the prevention of glare and the provision of a visual link with the outside. Guidance on types of window and on safety aspects is given in HTM 55 - 'Windows'.

Natural and artificial lighting

5.26 The interior should be light and pleasant with an adequate level of illumination that can be varied to suit functional activities. Because natural lighting is variable in quality and quantity the provision of a comprehensive artificial lighting installation is essential. Artificial lighting should be capable of providing the required levels of illumination at all times. It is also important to the aesthetic aspects of design, especially important in internal spaces which must be artificially lit.

5.27 The orientation of accommodation is an important consideration in any building scheme. Sunlight within a building enhances colour and shape and helps to make a room bright and cheerful. Glare should be minimised and may be controlled by curtains and blinds. Solar gain can be mitigated by external screens or by architectural detailing of the shape of windows and depth of reveals.

External works

5.28 Reference should be made to HBN 45 - 'External works for health buildings' (in preparation).

Ventilation

5.29 Ventilation is essential in all occupied premises. Natural ventilation is usually caused by the effect of wind pressure. It will also occur to some extent if there is a temperature difference between inside and outside the building. This effect frequently predominates when the wind speed is low and will be enhanced if there is a difference in height between inlet and outlet openings. Ventilation induced by wind pressure can promote high air change rates if air is able to move freely within the building. Internal partitions, fire compartment walls and closed doorways can however impede airflow and when this happens the process depends on single-sided ventilation. Nevertheless, even with this degree of obstruction, acceptable ventilation may still be obtained without excessive window openings which could prejudice safety, security and comfort. Some types of windows, for example, vertical sliding, can enhance this single-sided air exchange by temperature difference. These will improve the overall rate of natural ventilation in protected or sheltered areas where the effect of wind pressure is likely to be minimal.

5.30 Mechanical ventilation systems are expensive in terms of capital and running costs and planning solutions should be sought which take maximum advantage of natural ventilation. It is acknowledged that planning constraints imposed by the building shape and/or functional relationships of specific spaces will invariably result in some measure of enclosed internal areas. Ventilation costs can however be minimised by ensuring that wherever practicable core areas are reserved for

rooms that require mechanical ventilation irrespective of whether their location is internal or peripheral. Examples are: sanitary facilities and rooms whose functional requirements have specific environmental needs and where, for reasons of privacy and absence of solar gain, etc., windowless accommodation is acceptable. Other spaces appropriate to core areas are those which have only transient occupation and therefore require little or no mechanical ventilation. Examples are circulation and some storage areas.

Signposting

5.31 HBN 40 - 'Common Activity Spaces Volume 2 Corridors', and the Health Signs Manual issued in November 1984 as Health Technical Memorandum 65, should be consulted for general guidance.

Component Data

5.32 The Component Data Base consists of a series of Health Technical Memoranda (HTM) which provide specification and design guidance on building components for health building which are not adequately covered by current British Standards. No firms or products are listed. The numbers and titles of the HTMs in the series are listed in the bibliography.

6.0 Engineering services

Introduction

6.1 This Chapter describes the engineering services contained within a health records department (HRD) and their integration with the systems serving a whole site. Its purpose is not to inhibit the design solution but to acquaint the engineering members of the multi-disciplinary design team with the design criteria, material specifications, and reference data needed to meet the functional requirements.

6.2 Documents referred to by number eg[10] are listed at the end of the Chapter. They are numbered in order of first appearance, repeated references retaining the same number.

Model specifications

6.3 A series of model specifications for the specialised engineering services in health care buildings have been issued nationally and are sufficiently flexible to reflect local needs. The cost allowance for the engineering services in each functional unit of this accommodation is based on the qualities of material and workmanship described in the relevant parts of the model specifications.

Economy

6.4 Engineering services are a significant proportion of the capital cost and thereafter remain a continuing charge on revenue budgets. Therefore the project design engineer should ensure not only the utmost economy in initial provision, consistent with meeting the functional requirements and maintaining clinical standards, but also the optimum benefit from the total financial resources these services are likely to absorb during their lifetime.

6.5 Where alternative design solutions are available, their consequential capital and running costs should be compared using option appraisal techniques[1] so that due consideration is given to the need for, and the costs of, maintenance and the eventual replacement of plant and equipment.

6.6 The economic appraisal of alternative design solutions should include the heat conversion and distribution losses at the point of use. Where buildings are located remote from the development's load centre, these losses can often equal the useful energy consumed.

6.7 In any new project, consideration should be given to energy management and the facilities offered by a Whole Hospital control system to enable some measure of energy accounting to be exercised at departmental level.

6.8 After satisfying the Building Regulations[2] on the standards of thermal insulation provided, consideration should be given to the economics of additional insulation to the ground floor slab and to the roof (Engineering Data Sheet CE7[3] refers) particularly where accommodation is located in a building of low-rise construction. Where there is a solidly constructed ground floor, the inclusion of floor insulation will also contribute to staff comfort. Guidance concerning the economic thickness of thermal insulation relative to the cost of energy, 'K' values, temperature differences, capital costs and hours of use is given in Engineering Data Sheet CE11[4].

6.9 Similarly, in view of the increasing costs of generating heat energy, consideration should be given to the economics of appropriate equipment for recovering some of the value of the energy which would otherwise be discharged by mechanical ventilation systems. The programmed turning off, or reduction, of heating and ventilation in those spaces used only for part of the day should also be considered.

Maximum demands

6.10 User demand on engineering services is often difficult to predict, but experience indicates that services designed for simultaneous peak conditions are seldom fully utilised in practice. The estimated maximum demand and storage requirement (where appropriate) for each engineering service in this accommodation will need to be assessed individually to take account of the range, size and shape of the functional units, geographical location, operational policies and intensity of use. As a guide, and for preliminary planning purposes only, the following are the estimated maximum demands for a self-contained HRD (250,000 files) and located on a DGH site:

Service	Typical Max. Demand	Remarks
Heating, Ventilation (LPHW)	40 kW	
Domestic hot water	0.35 litre/sec	Storage 100 litres (2 hour recovery)
Cold water supply	0.35 litre/sec	Storage 900 litres (24 hour supply)
Ventilation supply	0.28 m^3/sec	
Ventilation extract	0.28 m^3/sec	Includes 0.04 m^3/sec dirty extract
Electrical	10 kW	Includes 4kW essential
Piped medical gases	No requirement	
Fuel gas	No requirement	
Steam	No requirement	

Space requirements for services

6.11 The satisfactory performance of plant in health care buildings is particularly important and the design should allow for ease and safe means of access and space for the necessary frequent inspection and maintenance and for eventual removal and replacement. As far as practical, however, this access should be protected from unauthorised entry.

6.12 Recommended spatial requirements for mechanical, electrical and public health engineering services in health buildings are given in HTM 23[5]. The information in HTM 23 is specifically intended for use during the initial planning stages when precise dimensional details of plant are not available.

6.13 The distribution of mechanical and electrical services to final points of use should, wherever possible, be concealed in walls and above ceilings. Heat emitters should be contained within a 200mm wide perimeter zone under window sills and critical dimensions should be taken from the boundary of this zone. For costing purposes the 200mm band, which includes the floor area occupied by minor vertical engineering ducts, is included in the building circulation provision.

Activity Data

6.14 User requirements, environmental conditions and equipment arrangements, as described in the Activity Data Sheets (see Chapter 8), should be referred to when positioning service components and outlets.

Safety

6.15 Section 6 of the Health and Safety at Work Etc Act 1974[6], as amended by Schedule 3 of the Consumer Protection Act 1987[7], imposes statutory duties on all persons who design, manufacture, import, supply, install or erect "articles for use at work". One of the requirements of this Section is to ensure, so far as is reasonably practicable, that the article is so designed and constructed that it will be safe and without risks to health at all times when it is being set, used, cleaned or maintained by a person at work. All parts of engineering systems are covered by the term "articles for use at work" and designers of these systems for health care premises must therefore fulfil their statutory obligations.

Fire precautions

6.16 Design guidance relative to the fire precautions in new hospitals is given in HTM 81[8]. Technical information concerning the design and specification of fire detection and alarm systems is detailed in HTM 82[9] which also replaces or modifies certain clauses of BS 5839 Part 1[10] to meet the needs of health care premises. More general advice on fire prevention, including the storage of flammable materials, is given in HTM83[11].

6.17 The design of the engineering services should accord with the recommendations in the above HTMs and the engineer should verify his proposals in accordance with the procedure described in paragraph 5.8.

Noise

6.18 Excessive noise in the individual areas , whether internally or externally generated and transmitted, can adversely affect the operational efficiency of the department and can cause discomfort. The limits and means of control advocated in Hospital Design Note 4[12], including its revisions[13], and the means of control given in Engineering Data Sheet DH(1)[14], should provide an acceptable acoustic environment. In addition to designing for control of noise levels, there may also be a need to ensure speech privacy, ie that confidential conversation is unintelligible in adjoining rooms or spaces. This will typically, but not, exclusively, be required in interview rooms. The acceptable noise level and any requirement for speech privacy, where applicable, in the individual spaces in this department is shown on the Activity Data A-Sheets.

Control access

6.19 Primary engineering distribution control and

isolation devices should be protected against unauthorised operation, eg switchgear and fuse-boards should be housed in secure cupboards. They should be located in circulation rather than working areas and, where appropriate, should be easily accessible for staff operation.

Engineering commissioning

6.20 It is most important that engineering services should be fully commissioned. HTM 17[15] describes the requirements which should be included in the design and construction contract documents. Flow measurement and proportional balancing of air and water requires adequate test facilities eg orifice plates, venturi valves etc to be incorporated at the design stage.

MECHANICAL SERVICES

6.21 The mechanical services include the provision of heating, ventilation, hot and cold water supplies. For cost allowance purposes the distribution of the heating, hot and cold water and ventilation systems is deemed to commence at their point of entry into the department and includes pipework, ductwork, fittings, controls and connections to equipment and terminal outlets. The cost allowance also includes for an appropriate proportion of the central ventilation plants and associated controls serving this department.

6.22 For environmental requirements in individual spaces, reference should be made to the Activity Data Sheets. Recommended room temperatures, air change rates, hot water service temperature etc are grouped under "Technical Design Data" on each A-Sheet. The B-Sheets give the disposition of engineering outlets for the activities described.

Heating

6.23 General space heating requirements can usually be met by low pressure hot water radiators operating as a sub-system from the primary heating distribution system.

6.24 Radiators should normally be located under windows or against exposed walls, with sufficient clear space between the top of the radiator and the window sill to prevent curtains reducing the output and adequate space below to allow cleaning machinery to be used. Where a radiator is located on an external wall, back insulation should be provided to reduce the rate of heat transmission through the building fabric.

Temperature controls

6.25 To facilitate overall temperature control, the heating system flow temperature should normally be varied via an external compensator, and thermostatic radiator valves should be installed on all heating appliances. These valves should be of robust construction and selected to match the temperature and pressure characteristics of the heating system. The thermostatic head, incorporating a tamper-proof facility for presetting maximum and minimum room temperature, should be controlled via a sensor located integrally or remotely as appropriate. Where space is restricted, or heat gains and/or losses are particularly variable, consideration should be given to the provision of thermostatically controlled fan-convectors fitted with low-limit control, but only where the generated noise is unlikely to be a nuisance.

6.26 The heating system within the HRD should be equipped with time switch control and programmed to accommodate the working hours of the unit. The control system, preferably incorporating an optimum start device, should be used to set-back the space temperature to an anti-condensation level of approximately 10°C when the accommodation is closed (actual set-back to be determined from local trials). To allow abnormal hours of working, a conveniently sited manual override time restricted switch should be provided so that the heating system can be restored promptly to its full operational state.

Ventilation

6.27 Recommendations for the ventilation of individual spaces in this department are shown on the Activity Data A-Sheets. Mechanical ventilation systems are expensive in terms of capital and running costs and planning solutions should be sought which take maximum advantage of natural ventilation. It is acknowledged that planning constraints imposed by the building shape and/or functional relationships of specific spaces will invariably result in some measure of enclosed internal areas. Ventilation costs can however be minimised by ensuring that wherever practicable core areas are reserved for rooms that require mechanical ventilation irrespective of whether their location is internal or peripheral. Examples are: sanitary facilities, and rooms whose functional requirements have specific environmental needs and where, for reasons of privacy and absence of solar gain etc, windowless accommodation is acceptable. Other spaces appropriate to core areas are those which have only transient occupation and therefore require little or no mechanical ventilation. Examples are circulation and some storage areas.

6.28 Air movement induced by mechanical ventilation should be from clean to dirty areas, where these can be defined, and should generally be arranged to encourage uniform air movement within the space. The design should allow for an adequate flow of air into any space having only mechanical extract. Transfer grilles should be provided in doors or walls to connect such spaces to either naturally ventilated corridors or other spaces with mechanical air supply. Such arrangements, however, should avoid the introduction of untempered air and should not prejudice the requirements of fire safety or speech privacy.

6.29 The fresh air supply should be tempered and filtered before being distributed via high level grilles with output profiles designed to avoid discomfort to the occupants. Ventilation supply plant should include air filters having a minimum arrestance of 85%, and a minimum average dust spot efficiency of 25%, when tested in accordance with BS6540 Part 1[16]. Filters must be readily accessible for replacement and maintenance purposes and provided with a pressure-differential indicator; coarse pre-filters may be necessary where the intake air is exceptionally polluted. Heater batteries should be sized for the ventilation requirements only, ie not the building fabric loss. All heater battery coils should be provided with frost protection.

6.30 A separate extract system will be required for "dirty" areas, eg sanitary facilities, and a dual motor/fan unit with an automatic changeover facility should be provided to ensure that these rooms are always maintained at a negative pressure when the unit is in use.

6.31 External discharge arrangements for extract systems should be protected against back pressure from adverse wind effects and located to avoid re-introduction of exhausted air into the building through air intakes and windows.

Ventilation controls

6.32 Supply and extract ventilation systems should include indicator lamps to confirm the operational status of each system. In this department, the use of the system is likely to be on a regular daily pattern, therefore time-switch control with manual override for a limited period should be provided. Where a system is provided for a particular space, the indicator should be in or immediately adjacent to that space, and local controls should be provided as appropriate. In the case of a more general system of ventilation, for example, toilet areas, the indicator should be located where it is easily visible. Where manual controls are available for staff use they should be provided with labels clearly defining their function.

Hot, cold and drinking water services

6.33 The domestic hot water supply should be taken from the general hospital calorifier installation at an outflow temperature of 60°C ± 2.5°C, and distributed to all outlets so that the return temperature at the calorifier is not less than 50°C.

6.34 Where hot water temperatures of 60°C are required and, due to extensive pipe runs, this cannot be achieved, local booster water heaters, electrically heated, should be considered.

6.35 Guidance concerning cold water supply pipework and distribution systems is given in HTM 27.[17] For frost protection purposes, and to prevent condensation staining decorative finishes, all cold water pipework, valves and flanges should be insulated and vapour sealed.

6.36 To control Legionellae, the water services should be designed, installed and commissioned in accordance with the recommendations in the DHSS Code of Practice.[18]

ELECTRICAL SERVICES

6.37 The electrical installation will include main intake switchgear, the wiring and equipment for lighting, power, and environmental plant together with the earth bonding of extraneous metalwork. Extensions from the hospital central systems for telephones, clocks, fire alarms and staff location services will also be required. These installations should comply in all respects with the current IEE Regulations for Electrical Installations[19] and conform to the requirements of HTM 7.[20]

6.38 Reference should be made to the Activity Data Sheets for the recommended levels of internal illumination and the disposition of outlets for power, telephones, and clocks, etc in individual spaces.

6.39 The point of entry for the electrical supply will be a departmental switchroom housing the main isolators and the main distribution equipment. The switchroom will also be the distribution centre for subsidiary electrical services and, wherever possible, all equipment should be mounted at a height to give easy access from a standing position. The switchroom should be positioned so as to minimise the cost of cabling required to serve the accommodation.

Electrical installation

6.40 The electrical installation in occupied areas should be concealed, usually using PVC insulated cable in screwed steel conduit or trunking, but, in certain circumstances, mineral insulated copper covered cables may be necessary.

External installations should comprise PVC insulated cables in galvanised screwed steel conduit with fittings of weatherproof pattern. Steel conduit and trunking wiring ways for communication systems should also be concealed whenever possible.

Electrical interference

6.41 Guidance concerning the avoidance and abatement of electrical interference is given in HTM 14[21] and fluorescent luminaries (lighting fittings) should comply with BS 5394. [22]

6.42 Care should be taken to avoid mains borne interference and electrical radio frequency interference affecting computers and other electronic equipment used here or elsewhere on the hospital site.

Lighting

6.43 Practical methods of lighting the various functional spaces are contained in the CIBSE Lighting Guide LG2.[23] The choice of luminaire should take account not only of the requirements for light distribution and visual comfort appropriate to the space, but also the operational efficiency of the light source used. Luminaires should be of a type which are easily cleaned and maintained, as well as being manufactured and tested in accordance with the requirements specified in the relevant sections of BS 4533.[24] Their location should be readily accessible for lamp changing and maintenance, with the overriding requirement that the recommended standard of illuminance is provided to the task areas. Luminaires using fluorescent lamps should be installed when artificial lighting is required for long periods or where areas are devoid of natural light; intermittently-used luminaires may be fitted with incandescent or compact fluorescent lamps.

6.44 Control of lighting is normally by local switches and these should be provided in sufficient numbers to allow variation in lighting options, for example, reduced levels of illuminance when circumstances permit, and to encourage energy conservation. This is particularly relevant in spaces where, because daylight is restricted, supplementary artificial lighting is required for long periods in areas away from windows. However, it is important that excessive contrast with adjacent areas should be avoided.

6.45 In areas where computer terminals are to be used, the lighting should be designed to avoid bright reflection on the screen and to ensure that the contents of the screen are legible. Further guidance can be found in CIBSE Lighting Guide LG3.[25]

Lighting of corridors, circulation and waiting areas

6.46 The lighting of corridors and circulation spaces not specifically covered by Activity Data Sheets should be in accordance with the guidance contained in HBN 40 – 'Common Activity Spaces Volume 2'. [26]

Lighting within health records storage areas

6.47 Careful consideration should be given to the lighting within this area to ensure that the lower shelves are illuminated to the required level. If mobile storage racking is used, it is recommended that the lighting be in continuous runs at right angles to the storage racks.

Socket-outlets

6.48 Sufficient I3 amp switched, shuttered socket-outlets, connected to ring or radial circuits should be provided to allow all portable appliances likely to be used simultaneously to be individually supplied. Activity Data Sheets indicate specific locations for the outlets associated with individual activities; the installation of twin outlets should be considered where these activities occur in juxtaposition.

6.49 Depending on local circumstances, consideration may need to be given to the quality and security of the electrical supply at socket-outlets serving computer equipment. It is envisaged that the circuits will be arranged so that regulators, filters or other specialised computer power supply equipment can readily be incorporated either initially or at a later date. The cost allowances do not include for the supply and installation of any such auxilliary equipment.

6.50 Domestic cleaning appliances with flexible leads nine metres long should be assumed and socket-outlets, usually in corridors, should be provided to enable such machines to operate over the whole area of the accommodation.

6.51 Fixed appliances rated up to 13 amp should be permanently connected to double pole switched spur boxes and fused as required. Appliances rated in excess of this load, or those requiring a three-phase supply, should be permanently connected to separate final circuits from fuse-boards and independently switched.

6.52 Local switches or other means of isolation should be provided adjacent to electrical machinery and plant to ensure the safety of operators and maintenance staff.

6.53 Heating appliances, and automatically operated equipment, should be provided with indicator lights to show when the equipment is energised. Such indicators should be incorporated in the control panel of the apparatus, in the control switch or in the socket-outlet from which the apparatus derives its supply.

Emergency electrical supplies

6.54 Guidance concerning the provision of emergency electricity supplies is given in HTM 11[27], and the grade of standby lighting provision is shown on the Activity Data A-Sheets. Safety lighting in accordance with HTM 11[27] and BS 5266[28] should be provided on primary escape routes.

6.55 Socket-outlets should be so distributed that, in each area where essential equipment may be used, socket-outlets connected to at least two separate circuits of common phase are available with one circuit connected to the essential electricity supply system.

6.56 All socket-outlets for communication, clock and alarm systems throughout the department should be connected to the essential electricity supply system.

Staff location system

6.57 The staff location system employed in the hospital should be extended to give adequate cover to the HRD. Guidance on these systems is given in HTM 20.[29]

Telephones

6.58 Central telephone facilities for internal and external calls will normally be available and should be extended to serve the HRD in accordance with the requirements shown on the Activity Data Sheets. Telephones will normally be of the desk pattern.

6.59 Guidance concerning the provision of telephone systems and equipment, including the telephone internal cabling distribution and telephone hand-sets, is given in HBN 48.[30]

6.60 It is considered that there is no justification for providing any separate internal communication systems in this accommodation in addition to the automatic telephone facilities.

Wireways for data links

6.61 Wireways, which should be segregated from electrical power and telephone cabling distribution systems, will usually be required for computer links between the main hospital computer system and the various work stations in the HRD. There may also be a requirement for data links to other departments, depending on the local policy for automatic data processing.

Electric clocks

6.62 Clocks should operate in conjunction with a master clock system. If such a system is not available, synchronous clocks should be installed using a common clock circuit suitable for future connection to a master system. Clocks should be installed only where they can be viewed by numbers of staff/patients/visitors.

Lightning protection

6.63 Protection against lightning should be provided in accordance with HTM 7[20], Engineering Data Sheet DB 2[31], and BS 6651.[32]

INTERNAL DRAINAGE

6.64 The primary objective is to provide an internal drainage system that uses the minimum of pipework and remains water-and air-tight at joints and connections, but is sufficiently ventilated to retain the integrity of water seals.

Design parameters

6.65 General design guidance is given in the relevant British Standards and Codes of Practice including BS 5572[33], and the current Building Regulations.[2] Recommendations regarding spatial and access requirements for public health engineering services are given in Engineering Data Sheet EA5.[34]

6.66 The gradient of branch drains should be uniform and adequate to convey the maximum discharge to the stack without blockage. Practical considerations such as available angles of bends/junctions and their assembly, as well as space considerations, usually limit the minimum gradient to about 1:50 (20mm/m). For the larger pipes, for example, 100mm diameter, flatter gradients can be used but require workmanship of a high standard if adequate self-cleansing flow is to be maintained. It is not envisaged that pipes larger than 100mm diameter will be required within the drainage system serving this department.

Operational considerations

6.67 Unusual and difficult maintenance problems can arise because of user interference and abuse. For example, the disposal of paper towels into WCs after hand-washing or after their misuse for some other purpose, is a frequent cause of blockages particularly in long branches laid to flat gradients. Adequate provision of disposal receptacles or where appropriate the installation of warm-air dryers can help to mitigate this problem.

Materials specification

6.68 The materials specified for the drainage system in this accommodation will depend upon their location and the nature of the effluent being discharged. Waste pipework should, as far as practicable, be concealed; where exposed, it should be metallic and very securely fixed. Although adequate for the drainage requirements, UPVC may not always be acceptable to the fire officer and it should not be installed above "sensitive" areas, eg switchrooms, operating, intensive therapy, radio-diagnostic or catering departments.

Engineering services implications of equipment for health records microfilm workshop

6.69 There is a wide variation in services and environmental requirements for the range of microfilm workshop equipment which, at the time of writing, is commercially available. It will be extremely difficult and costly to provide engineering services having sufficient versatility to cater for all combinations of equipment that could be used. It is essential therefore that the project engineer obtains full details of the systems and equipment to be used and advises the client/user of any unusual engineering requirements and any relevant additional cost implications. The major considerations are described in the following paragraphs.

6.70 Typical heat gains from microfilming cameras range between 150 and 700 watts. Most document cameras are capable of operating within a wide range of environmental conditions (ie temperatures between 16°C and 35°C and relative humidity between 25% and 60%). However, one currently (1991) available planetary camera specifies very much closer tolerances, especially concerning humidity, which implies a possible requirement for local air conditioning. Cameras usually require a dedicated electrical circuit, although their power consumption is not particularly significant (typically between 1 and 3 amps).

6.71 Microfilm processors produce significant heat gains (typically in excess of 1500 watts). It is usually preferred that this equipment be located in a self-contained processing room, therefore local summer cooling is likely to be required to provide reasonable environmental conditions for staff. Warm water is required for film processing, and whilst the quantity (typically 3 litres per minute at a pressure not exceeding 5 bars) is not significant, the quality of the water can be critical. One manufacturer currently (1991) specifies such demanding water quality parameters that local supplementary softening and filtration equipment would be essential in most circumstances. Other manufacturers do not appear to have such stringent water quality requirements. The project engineer should, therefore, at an early stage of the project design, obtain relevant water analysis data and clarify the requirements with respect to water quality for the equipment selected.

6.72 If a computer-assisted retrieval (CAR) system is selected for the finishing and indexing area, the typical equipment heat gains will be about 1600 watts. Manufacturers' environmental specifications for their equipment are typically room temperatures between 18°C and 24°C and relative humidity between 40% and 60%. Experience with existing CAR systems in NHS premises indicates that they will operate quite satisfactorily in the normal office environment and that local air conditioning is not necessary. However, this might not apply if the CAR system is segregated in a small room.

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7.0 Cost information

Introduction

7.1 For all types of health buildings, it is important that building costs and revenue expenditure are kept as low as possible consistent with acceptable standards. Within this general context, Health Building Notes provide a synopsis of accommodation for health buildings which the Department of Health, in conjunction with the National Health Service, recommends for the provision of a given service.

Works cost

7.2 To prepare an estimate of the works cost for a scheme, reference should be made to the Capricode Health Building Procedures Manual (Chapter 1, Stage 1, Annex 1.c.). The total cost allowance for a scheme is derived by aggregating the cost of the functional units and Optional Accommodation and Services (OAS) as appropriate to the particular scheme.

7.3 The cost allowances cover the building and engineering requirements set out in this Note. In costing the functional units it has been assumed that the Health records department (HRD) will be incorporated into a hospital or other health building where the common use of services will be available.

Functional unit and Optional Accommodation and Services (OAS)

7.4 The functional units for the four components of an HRD are:

a. **Office work-station** : two sizes of HR office are given - 20 and 25 office work-stations;

b. **Case note** : two sizes of HR library are given - 250,000 and 350,000 case notes;

c. **Admissions office** : one size only is given;

d. **Microfilm workshop** : one size only is given, and is included as Optional Accommodation and Services for selection by project teams if required.

The activity spaces and areas used for costing the functional units are listed in the Schedules of Accommodation at the end of this Chapter.

Dimensions and areas

7.5 In determining spatial requirements, the essential factor is not the total area provided but the critical dimensions, that is, those dimensions critical to the efficient functioning of the activities which are to be carried out. To assist project teams in preparing detailed design solutions for the rooms and spaces, studies have been carried out to establish dimensional requirements in the form of critical dimensions. The results of these studies appear as ergonomic diagrams in Health Building Note 40 - 'Common Activity Spaces'.

7.6 For development planning and at the earliest stage of a design it may be convenient for designers to have data available which will enable them to make an approximate assessment of the sizes involved. For this reason, the areas prepared for the purpose of establishing the cost allowances are included at the end of this Chapter.

7.7 It is emphasised that the areas published **do not** represent recommended sizes, nor are they to be regarded in any way as specific individual entitlements.

Circulation

7.8 Space for circulation, which includes allowances for planning provision, an engineering zone adjacent to the external walls, small vertical ducts and partitions, is shown in the Schedules of Accommodation and is included in the cost allowances.

Communications

7.9 Staircases, lifts and plant rooms, with the exception of an electrical switchroom, are not included in the cost allowances.

Engineering services

7.10 The following engineering services, as described in Chapter 6 and exemplified in the Activity Data, are included in the cost allowances. Primary engineering services are assumed to be conveniently available at the boundary of the department.

a. **Mechanical services**

Heating: Low pressure hot water system, maximum surface temperature 82°C.

Ventilation: Mechanical supply and extract to meet functional requirements; other areas will be mainly naturally ventilated.

Cold water service: Centrally supplied to service points including drinking water and fire hose reels. Storage tanks excluded.

Hot water service: Centrally supplied to service points. Storage excluded.

b. **Electrical services**

Departmental distribution switchboard.

General lighting as required by tasks.

Fluorescent, tungsten, safety and emergency luminaires as appropriate.

Socket-outlets and other power outlets for fixed and portable equipment.

Supplementary equipotential earth bonding connections.

Standby and safety installations from the main hospital supplies.

Fire alarm system.

Impulse clocks.

Staff location – extension to the hospital system.

Telephone internal cabling distribution and outlets. Handsets excluded.

Data transmission trunking and conduits only.

7.11 The following engineering services, in addition to the departmental services described in paragraph 7.10 above, have been included in the (OAS) cost allowance for the microfilm workshop:

a. local packaged, "through-the-wall" type, air conditioner for the processing room only; all other areas naturally ventilated;

b. hot and cold water services for microfilm processor centrally supplied to local thermostatic mixing valve only; water storage, auxilliary softening and filtration equipment excluded;

c. individual electrical circuits for all items of microfilm workshop equipment (that is, cameras, processors and reader/fillers).

Schedules of accommodation

HR office

Para no.	Activity Space	Space area sq.m.	20 Wkstns. Qty.	20 Wkstns. Total area sq.m.	25 Wkstns. Qty.	25 Wkstns. Total area sq.m.
Management offices						
4.5	Health records manager	16.00	1.0	16.00	1.0	16.00
4.6	Assistant HR managers	18.00	1.0	18.00	1.0	18.00
4.7	Secretaries	12.00	1.0	12.00	1.0	12.00
4.8	Staff supervisors	9.00	1.0	9.00	1.0	9.00
Service spaces						
4.9	Postal point and case note sorting	10.00	1.0	10.00	1.0	10.00
4.16	Registration/documentation office		1.0	11.00	1.0	16.50
4.17	Case note preparation office		1.0	44.00	1.0	60.50
4.18	Reading room	10.50	1.0	10.50	1.0	10.50
4.19	Clinical coding office	22.00	1.0	22.00	1.0	27.50
Office suport spaces						
4.21	Office machines room	8.00	1.0	8.00	1.0	8.00
4.23	Waiting	4.50	1.0	4.50	1.0	4.50
4.24	General/stationery store	4.00	1.0	4.00	1.0	4.00
Utility spaces						
4.25	Beverage bay	4.00	1.0	4.00	1.0	4.00
4.26	Staff WC	2.00	1.0	2.00	2.0	4.00
4.26	Disabled WC	4.50	1.0	4.50	1.0	4.50
4.27	Staff coats		1.0	4.00	1.0	5.00
4.28	Cleaners' room	6.50	1.0	6.50	1.0	6.50
4.31	Switchroom	2.00	1.0	2.00	1.0	2.00
	Nett total			192.00		222.50
	Circulation etc.			76.00		88.00
	Total			**268.00**		**310.50**
	Departmental areas			270 sq.m.		310 sq.m.

HR library

Para no.	Activity Space	250,000 Case notes Qty.	250,000 Case notes Total area sq.m.	350,000 Case notes Qty.	350,000 Case notes Total area sq.m.
4.32	Case note library	1.0	255.00	1.0	350.00
4.35	Microfilm library	1.0	14.00	1.0	16.00
	Nett total		269.00		366.00
	Circulation etc.		50.00		68.50
	Total		**319.00**		**434.50**
	Departmental areas		320 sq.m.		435 sq.m.

HR admissions office

Para no.	Activity Space	Space area sq.m.	Qty.	Total area sq.m.
4.37	Waiting	15.00	1.0	15.00
4.38	Reception	11.00	1.0	11.00
4.39	Staff office	16.50	1.0	16.50
4.39	Storage/printer area	6.00	1.0	6.00
	Nett total			48.50
	Circulation etc.			9.00
	Total			**57.50**
	Departmental area			60 sq.m.

Optional Accommodation and Services

HR microfilm workshop

Para no.	Activity Space	Space area sq.m.	Qty.	Total are sq.m.
4.40	Case note/documentation store	2.00	1.0	2.00
4.42	Preparation/filming room	11.50	1.0	11.50
4.45	Processing area	5.50	1.0	5.50
4.48	Finishing and indexing room	7.50	1.0	7.50
4.50	General storage	4.00	1.0	4.00
	Nett total			30.50
	Circulation etc.			9.00
	Total			**39.50**
	Departmental area			40 sq.m.

8.0 Activity Data

Introduction

8.1 "Activity Data" is an information system developed to help project and design teams by defining the users' needs more precisely. This information constitutes the computerised Activity Data Base, first issued to Health Authorities in England and to the Health Departments in Scotland, Northern Ireland and Wales in 1989, and subsequently up-dated twice yearly. It comprises three types of information sheet: Activity Space Data Sheets (known as A-Sheets), their supporting Activity Unit Data Sheets (known as B-Sheets) and A-Sheet component listings (known as D-Sheets).

8.2 A-Sheets record in more detail than is described in this Note each task or activity that is performed in a particular activity space (which may be a room, space, corridor or bay) together with environmental conditions and the technical data necessary to enable the activities to be performed. Each A-Sheet also contains a list of the titles and code numbers of the relevant B-Sheets.

8.3 B-Sheets provide narrative text and graphics to scale relating to one activity. They show equipment fitted or supplied as part of the building, and the necessary engineering terminals. There are also "component B-Sheets" which show a range of particular components rather than an activity.

8.4 D-Sheets provide information about the total quantities of components (excluding those in Group 4 – see paragraph 1.10) extracted from all B-Sheets selected for inclusion in an individual A-Sheet.

8.5 Activity Data is only available in the form of magnetic media, but this may be used to generate paper copies where required.

8.6 Further information about the use and preparation of Activity Data can be found in the 'Guide to 'A' and 'B' Activity Data Sheets and their use in Health Building Schemes' issued to Health Authorities with EL(89) MB/19 (in Wales, WHC(89)18). Health Authorities may obtain additional copies of the Guide and an explanatory video tape from NHS Estates, Room 540, Euston Tower, 286 Euston Road, London NW1 3DN.

Activity Data applicable to this Note

8.7 The A-Sheets recommended for the activity spaces described in this Note are either new sheets, amended ones or selected from existing sheets. A list of A-Sheet code numbers and titles is given at the end of this Chapter.

8.8 Further Activity Data Sheets may be selected, or drawn up by project teams to their own requirements, for any services not described in the Note or included in the list. Members of project teams are advised to contact their Activity Data Co-ordinator/Welsh Office for information and advice about the selection of activity data, at an early planning stage.

8.9 In order to ensure consistent and economic provision, variations from the A-Sheets recommended for the spaces covered in this Note should be considered only where it has been decided that the function of a space will differ substantially from that described.

List of Activity Data A-Sheets

Note. The Activity Data A-Sheets listed below may not carry a title identical to the activity spaces detailed in this Note. Use of the appropriate A-Sheet code number will, however, result in the correct activity space being accessed.

Activity Space	A-Sheet Code no.	Para. no. in HBN
1. OFFICE: TYPE 2	M0218	4.5
2. OFFICE: TYPE 3	M0219	4.6
3. OFFICE SECRETARIAL: STAFF 2	M0221	4.7
4. OFFICE: TYPE 3	M0219	4.8
5. OFFICE: POST & CASE NOTES, SORTING Health Records	M0109	4.9
6. OFFICE: REGISTRATION, DOCUMENTATION, HEALTH RECORDS 2 Staff	M1004	4.16
7. OFFICE: CASE NOTE PREP, HEALTH RECORDS 8 Staff	M1019	4.17
8. OFFICE INFORMATION: READING ROOM, HEALTH RECORDS	M0412	4.18

Activity Space	A-Sheet Code no.	Para. no. in HBN
9. OFFICE GENERAL: CLINICAL CODING 4 Staff	M1018	4.19
10. OFFICE MACHINES: PRINTERS	M1009	4.21
11. WAITING AREA: RELATIVES/ VISITORS, UP TO VISITORS 6	J1302	4.23
12. STORE: STATIONERY HR office	W1528	4.24
13. BEVERAGES: PREPARATION, WASHING-UP	P0701	4.25
14. STAFF WASHROOM/WC 2 WC & 2 HANDWASH	V1004	4.26
15. CLEANING ROOM: DEPARTMENTAL	Y1203	4.28
16. SWITCHGEAR: ROOM/ CUPBOARD	K0101	4.31
17. HEALTH RECORDS: CASE NOTE LIBRARY	W0809	4.32
18. HEALTH RECORDS: MICROFILM LIBRARY	W0808	4.35
19. WAITING AREA: UP TO PATIENTS 10	J1303	4.37
20. ADMISSIONS: RECEPTION & OFFICE	J0604	4.38/39
21. STORE: STATIONERY Admissions office	W1555	4.39
22. STORE: GENERAL, MICROFILM Holding case notes	W1552	4.40
23. MEDIA PROCESSING: MICROFILM WORKSHOP Preparation and filming area	R0801	4.42/43
24. MEDIA PROCESSING: MICROFILM WORKSHOP Processing area	R0802	4.45
25. MEDIA PROCESSING: MICROFILM WORKSHOP Finishing and Indexing area	R0803	4.48

Appendix 1

Case note library: descriptions of folders and filing systems

1. Appendix I provides information about the contents of, and systems used in, a case note library.

Case note folder

2. Case note folders should be of good quality manila, measure 305mm x 240mm, and have a gusset along the spine to allow for expansion to a maximum of 40mm as more documents are added. Each patient is assigned a unit number (usually comprising six digits), which is printed on the outside of the case note folder(s), and used as a unique identifier for that patient.

Case note density and weight

3. The density of case notes will depend on local practices, but is usually between 80 and 120 case notes per metre run. If personal tracer cards are used, or if miniaturised x-rays are filed in the case notes, the number per metre run may be lower. A typical weight of a metre run of case notes is approximately 40kg.

Filing methods

4. There are three main methods of filing case notes:

a. **terminal digit**
The library is divided into 100 primary sections, numbered 00 to 99. The six figure unit number is divided into three pairs of numbers. Case notes are filed first by the third pair of numbers (terminal), then by the middle pair, and finally by the first pair. This method spreads growth throughout the library.

b. **sequential numerical**

Case notes are filed in straight number order. This produces constant end growth in the library.

c. **alphabetical**
Case notes are filed in alphabetical order. This system is used rarely nowadays because of the large numbers of case notes involved.

Filing equipment

5. There are three main types of storage equipment available:

a. **shelf filing**
The most common and most suitable method is to file case notes on metal shelves. The shelving may be fixed (i.e., static) or mobile units, or a combination of both. Shelves are usually in 900mm runs, with side pieces and backing sheets. The optimum length for a mobile unit is approximately 5.4m. Shelves should be 300mm deep and set with 300mm centres between shelves, and divided by supports at 300mm intervals. The edges of shelving and side pieces must be rolled. The highest shelf should be accessible by a short member of staff using a kick stool, which allows six levels of shelving. Step ladders should not be used.

A unit of shelving is one double-sided run. Mobile units are mounted on tracks and rails and propelled by a hand wheel or are electrically driven. Mobile units reduce the number of gangways and, therefore, increase the amount of storage space.

Gangways 900mm wide should be provided between the rows of shelving to allow for trolleys and kick stools. Main access aisles should be at least l.5m wide to allow for trolleys passing each other, and for exit in the event of fire. If mobile units are used, sufficient gangways and fixed units should be allowed so that access is not impeded.

b. **circular/carousel filing**
A carousel unit consists of a number of plastic or metal trays revolving around a central spine. The height between the trays is adjustable and the trays can be moved independently. Carousels use least space when they are installed properly in banks, but they often use more space than fixed or mobile shelving. A typical six-tray unit is about 2m high, with a tray diameter of about 800mm and a base diameter of about 750mm. The capacity depends on the size of case notes stored but studies suggest a load of between 1200 and 2100 case notes.

c. **elevator files**

These are very large metal cabinets, usually 6m high. Case notes are filed on long shelves which rotate within the cabinet. The shelves are electrically driven and the selected shelf comes to rest at normal working height. Consequently, they are easy to use, but may limit speed of access. The units are useful if floor space is at a premium, but height is available. The units may be linked to computer systems for retrieval of case notes.

Appendix 2

Case note library: method for calculating linear measure of shelving required

1. Appendix 2 presents a method for calculating the linear measure of shelving required in a case note library.

Method

Step 1

2. Estimate the number of case notes to be stored in the new library when first brought into use.

Note. Account should be taken of case notes to be transferred from existing health records departments.

Step 2

3. Estimate the growth rate of the new case note library, i.e., the number of new case notes likely to be registered each year.

Note. The growth rate of existing case note libraries will help determine this estimate.

Step 3

4. Estimate the number of case notes that will be removed from the current case note library each year, for microfilming, destruction and/or transfer to secondary storage, according to local policy.

Step 4

5. Estimate the number of case notes to be filed per linear metre.

Note. To arrive at a reasonable estimate, sample counts should be taken of case notes on a number of shelves in existing case note libraries.

Step 5

6. Decide for how many years ahead the case note library is to be planned. A maximum of 10 years is recommended.

Step 6

7. Calculate the linear measure of shelving using the following equation:

$$\frac{a + (b-c)e}{d} = f$$

Where a = the number of case notes *(Step 1)*

b = the annual growth rate *(Step 2)*

c = the number of case notes removed from the case note library each year *(Step 3)*

d = the number of case notes to be filed in linear measure *(Step 4)*

e = the number of years planned for *(Step 5)*

f = the linear measure of shelving required.

Worked example

8. A worked example is shown below on the basis of the followng assumptions:

a. (number of case notes) = 200,000

b. (annual growth rate) = 10,000

c. (number of case notes removed from system annually) = 5,000

d. (number of case notes filed per linear metre) = 100

e. (number of years planned for) = 10

$$\frac{200{,}000 + (10{,}000 - 5{,}000)\ 10}{100} \text{ linear metres}$$

$$= \frac{200{,}000 + 50{,}000}{100} \text{ linear metres}$$

$$= \frac{250{,}000}{100} \text{ linear metres}$$

= 2,500 linear metres

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Not including detailed engineering references, which are given at the end of Chapter 6.

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Activity Data 8.1
Activity Data applicable to this Note 8.7
Activity Data (engineering) 6.14
Acute mental illness 1.6
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